Mircom™

INX-10A

Intelligent NAC Expander Panel

Installation and Operation Manual

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1.0 Introduction

This document provides information for the successful installation, operation and configuration of the INX-10A.

This chapter explains

- Feature Overview
- Contact Information

1.1 The INX-10A Intelligent NAC Expander Panel

Mircom's INX-10A is an Intelligent NAC Expander Panel for use with Mircom's FX-2000 Series addressable Fire Alarm Control Panels. The INX Series operates in CLIP (Classic Loop Interface Protocol) mode. Available as a 10 Amp configuration, the INX-10A extends the power capabilities of existing notification appliance circuits and provides power for other ancillary devices.

The INX-10A also has the ability to operate with any UL Listed 24 VDC conventional fire alarm control panel to provide Notification Appliance Circuit expansion.

1.1.1 Compatible Fire Alarm Control Panels

Table 1 Compatible Fire Alarm Control Panels

Manufacturer	Fire Alarm Control Panel Series
Mircom	FX-2003-12N
	FX-2017-12N
	FX-2009-12N
	FX-2003-6
	FX-2003-12
	FX-2003S-12
	FX-2017-12A
	FX-2017S-12A
	FX-2009-12
	FX-2009S-12
Secutron	MR-2100 / MR-2200 Series
	MR-2900 Series

1.1.2 Features

- Supports 8 synchronized panels on one node to meet sync timing requirements
- Supports up to 14 panels per node using minimal configuration (7 SLC points per booster)
- Supports up to 6 panels per node using maximum configuration (15 points for extended trouble reporting and two-stage operation).
- Outputs used as power supply outputs do not require panel configuration or SLC addresses
- Utilizes DIP switches for configuration
- DC regulated outputs
- Configurable NAC, Power and Door Holder Outputs
- Configurable AC Power fail delay
- Enable or disable Ground fault
- Separate Relay for Ground Fault and Common Trouble available on terminals

- Enable or disable the Battery Charger on activation
- Class A or B output signals
- Horn/Strobe sync protocols include Mircom, Amseco, Gentex, System Sensor and Wheelock
- Ability to sync outputs for multiple INX-10A units
- 2 wire horn/strobe Sync mode allows audible notification appliances (horns) to be silenced while visual notification appliances (strobes) continue to operate
- Audible signals may be configured for Steady, Temporal Code, California Code and March Time
- Output fault notification to FACP
- Built-in charger for sealed lead acid or gel type batteries
- Enclosure fits 4AH, 7AH and 12AH batteries
- 2.5 Amp max current per output
- 1.7 Amp auxiliary power output
- Unit includes power supply and charger, red enclosure, cam lock, transformer and battery leads
- Compatible with 24VDC fire panels
- Surface or flush-mountable

1.1.3 General Notes

Circuits And Zones

Circuits refers to an actual electrical interface, Input (Detection), NAC Notification Appliance Circuit) which connect audible and visible notification appliances to the fire alarm system control unit (Signal), or Relay.

Wiring Styles

- Input Circuits are configured as Class B (Style B).
- NAC Circuits may be individually wired as Class A (Style Z) or Class B (Style Y) without affecting the number of circuits available.
- Signal Line Circuit Class A (Style 7) and Class B (Style 3).

1.2 Contact Us

For General Inquiries, Customer Service and Technical Support you can contact us Monday to Friday 8:00 A.M. to 5:00 P.M. E.S.T.

1.2.1 General Inquiries

Toll Free	1-888-660-4655 (North America Only)
Local	905-660-4655
Email	mail@mircom.com

1.2.2 Customer Service

Toll Free	1-888-MIRCOM5 (North America Only)
Local	905-695-3535
Toll Free Fax	1-888-660-4113 (North America Only)
Local Fax	905-660-4113
Email	salessupport@mircom.com

1.2.3 Technical Support

Toll Free	1-888-MIRCOM5 (North America Only)
	888-647-2665
International	905-647-2665
Email	techsupport@mircom.com

1.2.4 Website

www.mircom.com

2.0 INX-10A Overview

This chapter lists the components of the INX-10A.

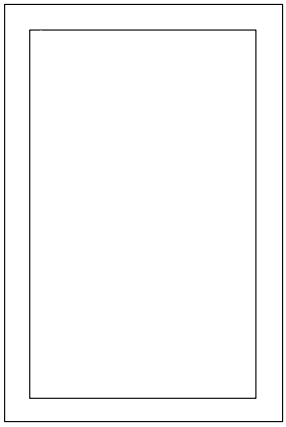
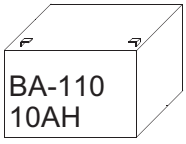
This chapter explains

- INX-10A Components

2.1 INX-10A Components

The following table describes the components of the INX-10A.

Table 2 FX-3500 Components

	Model	Description
	INX-10A	Intelligent NAC Expander, 10 Amps
	**FA-300TR**	Flush Trim Ring, Red
	**BA-104, BA-1065, BA-110**	12 VOLT Batteries (4Ahr to 12AH)

3.0 Installation

This chapter describes the installation of the INX-10A

This chapter explains

- How to mount the Enclosure
- Main Chassis Board Connections

3.1 Enclosure Dimensions

Outer Dimensions	14.23” x 4.42” x 19.85”
Distance between upper mounting screws	11”
Distance between lower mounting screws	11”
Distance between upper and lower mounting screws	14.1”
FA-300TR Dimensions	17” x 22.5”

3.2 Installing the INX-10A Enclosure

The INX-10A can be surface mounted with four screws as shown in Figure 1 or flush mounted as shown in Figure 3 on page 17.

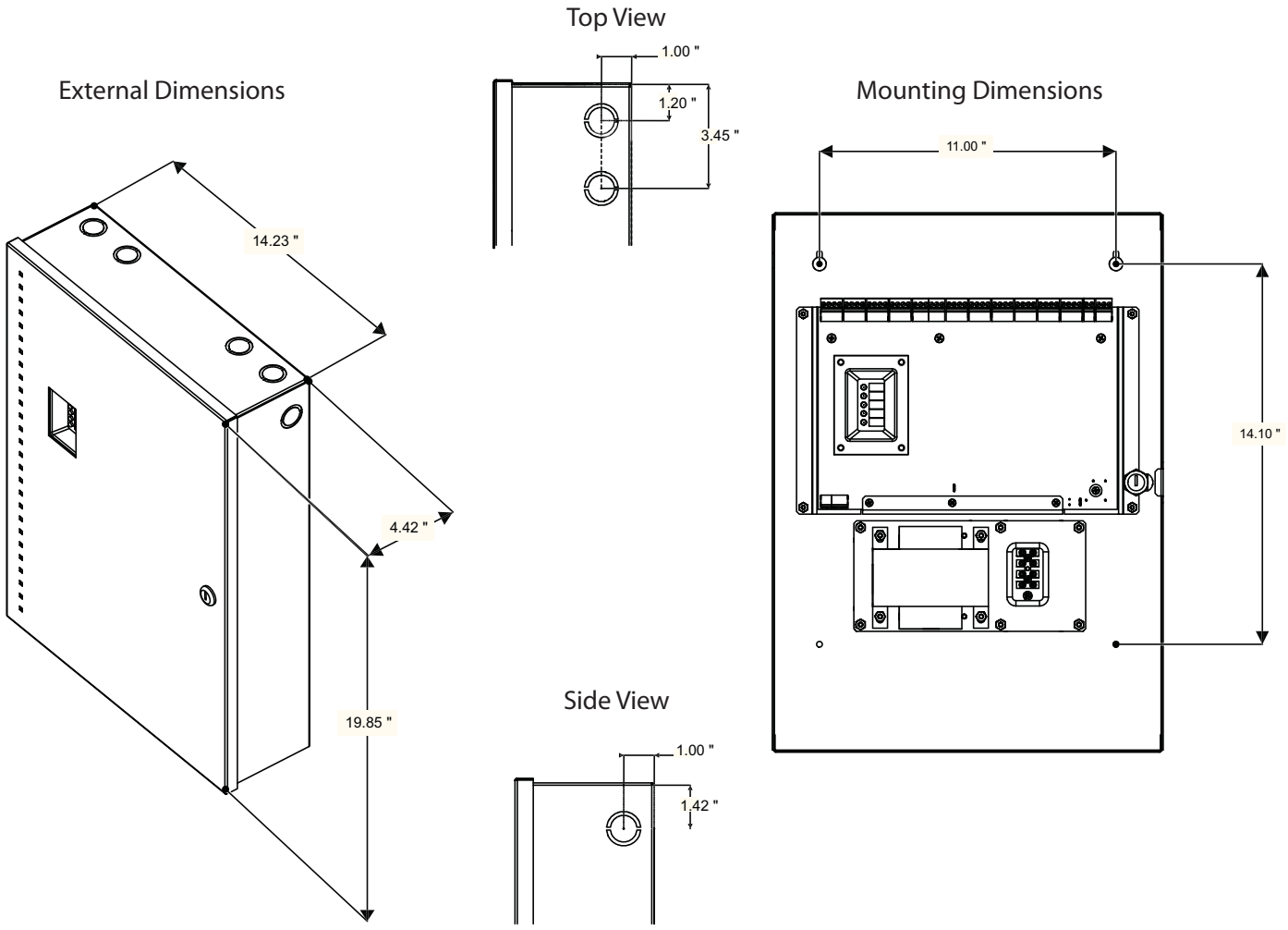


Figure 1 INX-10A Dimensions

To Surface Mount the Enclosure

1. Using the INX-10A back plate as a template, mark the top of the two mounting hole locations 11” apart as shown in Figure 1 INX-10A Dimensions.
2. Place the screws halfway into the wall in the position shown using a suitable screw.
3. Hang the box onto the two screws.
4. Screw the other two screws at the bottom of the panel.
5. Tighten all four screws into place.

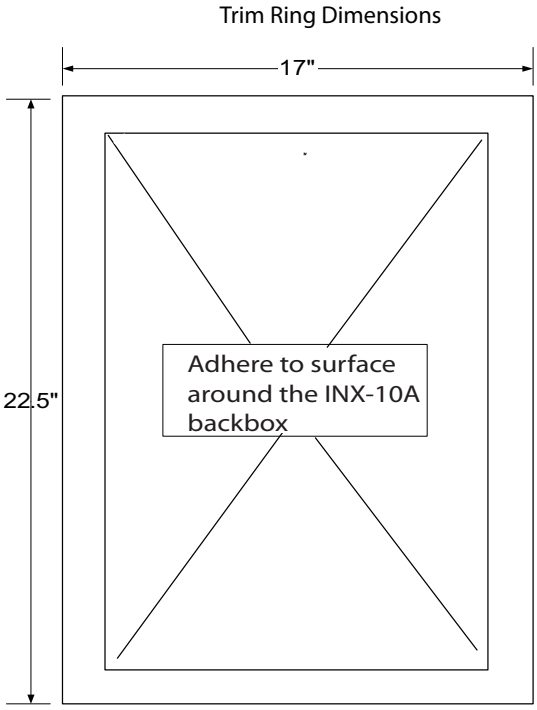


Figure 2 FA-300TR Dimensions

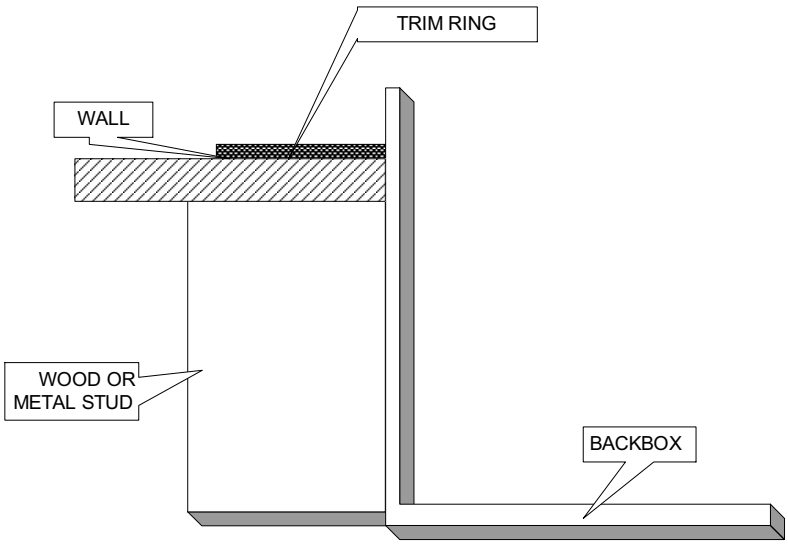


Figure 3 Flush mounting the enclosure

To Flush Mount the Enclosure

1. Unscrew and remove Main Chassis and Transformer from the enclosure.
2. Unscrew the wingnut and remove the door.
3. Mount the backbox into the wall.
4. After the wall is finished, peel the adhesive cover from the trim ring and stick to the wall surface around the backbox.

Note: Figure 3 shows a cross-section of the semi-flush mounted backbox and the trim ring. Allow a minimum depth of 1” above the wall surface for proper door opening.

3.2.1 Installation Tips

- Group the incoming wires through the top of the enclosure. Use a wire tie to group wires for easy identification and neatness.
- Be sure to connect a solid Earth Ground (from building system ground / to a cold water pipe) to the Chassis Earth Ground Mounting Lug, and to connect the Earth Ground Wire Lugs from the Main Chassis to the ground screw on the Backbox.

Attention: DO NOT install cable through bottom of the box. This space is reserved for Batteries.

3.3 Chassis Board Connections

The Main Chassis is pre-installed in the INX-10A Enclosure as shown in Figure 1 INX-10A Dimensions on page 16. The connections are shown in Figure 4 INX-10A Chassis Board Connectors and Jumpers on page 19 and are described in Table 3 INX-10A Chassis Board Connectors and Jumpers on page 19.

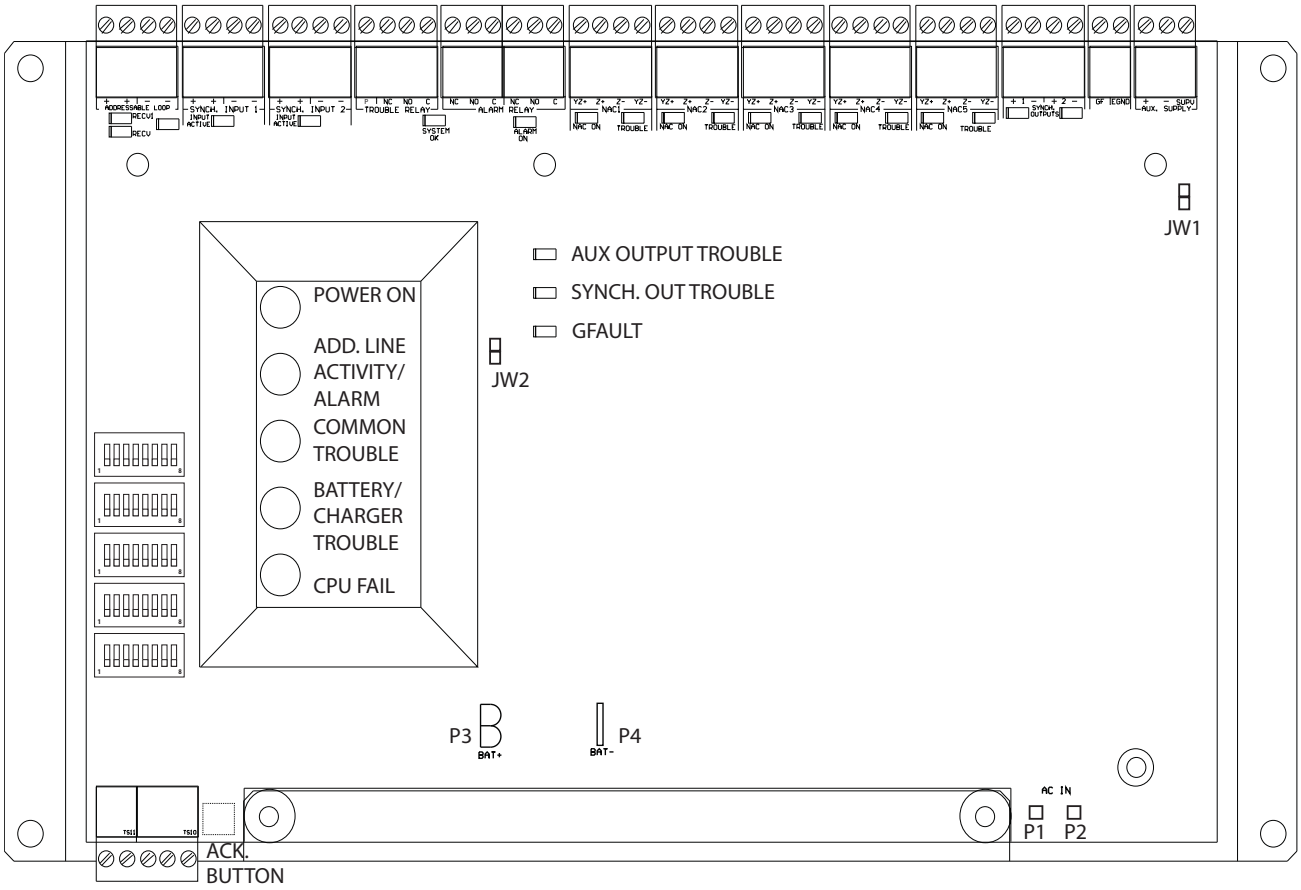


Figure 4 INX-10A Chassis Board Connectors and Jumpers

Table 3 INX-10A Chassis Board Connectors and Jumpers

Connector/Jumper	Description
P1,2	Connection for 29VAC AC In
P3,4	Connection to Battery Red(+) to P3 Black(-) to P4
JW1	Auxiliary Power Supervision. Factory set ON. Leave in place for supervision. Remove for non-supervision.
JW2	Factory set (closed), leave in place

4.0 Indication & Controls

This chapter describes the LED indicators and controls of the INX-10A.

This chapter explains

- Main Chassis Board LED Indicators
- Flash Rates
- Acknowledge button
- DIP switches

4.1 Indication and Controls

The INX-10A has 5 main annunciation indicators located on the main display panel. For troubleshooting purposes there are 3 trouble LED indicators located directly on the main board. There are also other LED's for SLC activity, synchronized input and output activity, and trouble and alarm relay. These indicators are only visible after opening the enclosure. Indicators may be Amber, Red, or Green, and may illuminate continuously (steady), or at the Trouble Flash Rate. For additional information see 4.1.4 Flash Rate on page 23.

There is one control button, the acknowledge button, located underneath the main display panel. There are also five Dipswitches used for configuration. For additional information see Chapter 6.0 Configuration on page 30.

Figure 5 displays the LED indicators and the control button on the INX-10A main board.

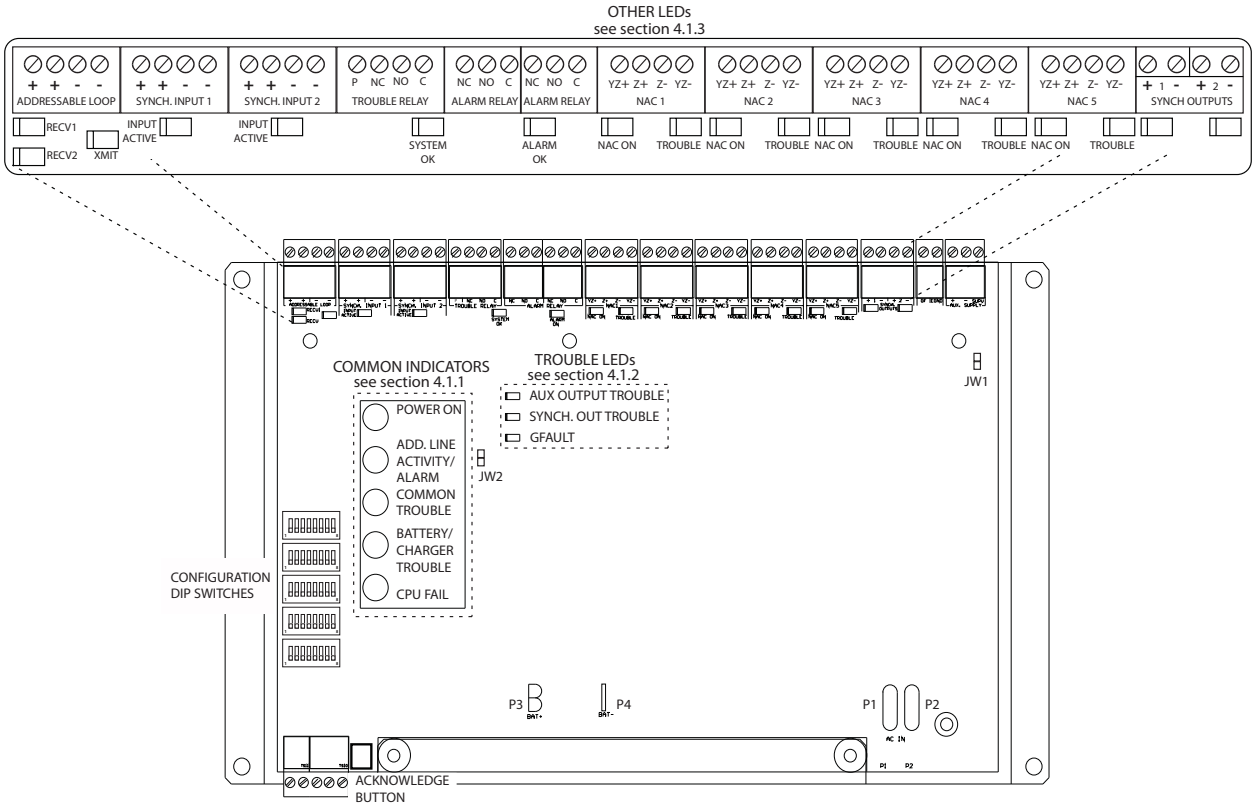


Figure 5 Main Board highlighting Common Indicators, Trouble LED's, Other LED's

4.1.1 Common Indicators

The main display panel has 5 common LED indicators; Power On, Add. Line Activity/Alarm, Common Trouble, Battery / Charger Trouble and CPU fail.

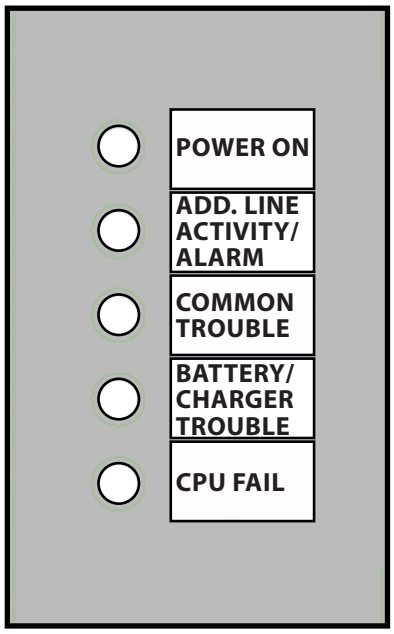


Figure 6 Common Indicators

Power On

The Power On LED Indicator activates steady green while the main AC power is within acceptable levels. It flashes green to display a trouble when the level falls below the power-fail threshold and the panel is switched to standby (battery) power.

Addressable LIne Activity / Alarm (Add. Line Activity / Alarm)

The Addressable Line Activity / Alarm Indicator flashes red whenever there is activity on the addressable circuit(s). It activates steady red when there is an alarm.

Common Trouble

The Common Trouble LED Indicator activates steady amber to indicate any active trouble and flashes for restored troubles. To clear the trouble and reset the panel press the acknowledge button. The additional troubleshooting LED's on the main board can provide more information on what the trouble is. See 4.1.2 Trouble LEDs below for a description.

Battery / Charger Trouble

The Battery / Charger Trouble LED Indicator activates steady amber when the Battery is either low (below 20.4 VDC), or the Battery or Charger are disconnected. It flashes amber for a restored trouble. For configuration information see 6.2.2 Setting Protocols, Reporting, Charger, Battery Installed on page 34.

CPU Fail

The CPU Fail LED Indicator flashes amber when the processor ceases functioning.

4.1.2 Trouble LEDs

The main board has three onboard LEDs to aid in troubleshooting.The door must be opened in order to view these LEDs.

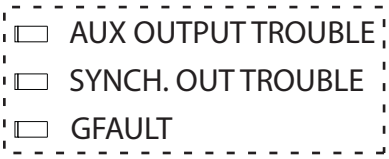


Figure 7 Trouble LEDs

Auxiliary Supply Trouble

Flashes amber when there is a trouble with the auxiliary supply output, check for shorts or excessive load.

Synchronized Output Trouble

Flashes amber when there is a trouble with the synchronized output. Check the circuit for presence of EOL or short.

Ground Fault Trouble

Flashes amber when there is a ground fault trouble. To correct the fault, check for any external wiring touching the chassis. Jumper, a wire loop, must be installed to enable Ground Fault detection. For wiring information see Figure 37 Relay, Ground Supervision and Auxiliary Supply Wiring on page 74. For configuration information see 6.2.2 Setting Protocols, Reporting, Charger, Battery Installed on page 34.

4.1.3 Other LEDs

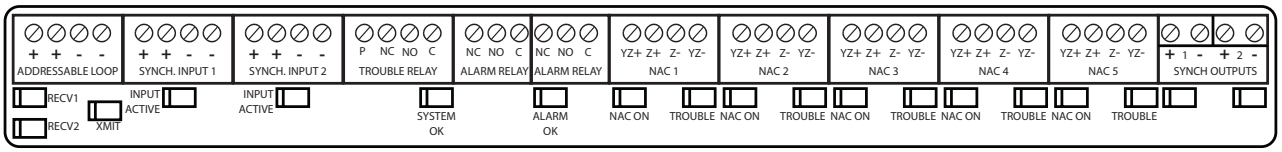


Figure 8 Additional LEDs

Addressable (SLC) Loop Indicators

Three LEDs. Two LED's that flash green for incoming activity for each loop, and one that flashes red for outgoing loop activity.

Synchronized Input Indicators

Two LEDs. One LED on each input that flashes green for incoming activity.

Trouble Relay Indicator

One LED that is steady green for system OK.

Alarm Relay Indicator

One red LED that is steady red when an alarm is activated.

NAC Circuit Indicators

Each NAC Circuit has one red LED that flashes when activated and one amber that activates solid when a trouble occurs. To clear the trouble and reset the panel press the acknowledge button.

Synchronized Output Indicators

Two LEDs. One LED on each output that flashes green for outgoing activity.

4.1.4 Flash Rate

Trouble Flash

20 flashes per minute, 50% duty cycle.

4.1.5 Controls

Acknowledge Button

This button is used to clear any trouble indications on the INX-10A.

Configuration DIP switches

The DIP switches are used for a variety of different configuration settings. For more information see Chapter 6.0 Configuration on page 30.

5.0 Operation

This chapter describes operational capabilities of the INX-10A

This chapter explains

- Circuit Types
- Synchronization Modes
- Power Supply Modes
- Evacuation Codes

NOTICE TO USERS, INSTALLERS, AUTHORITIES HAVING JURISDICTION, AND OTHER INVOLVED PARTIES			
This product incorporates field-programmable software. In order for the product to comply with the requirements in the Standard for Control Units and Accessories for Fire Alarm Systems, UL 864, certain programming features or options must be limited to specific values or not used at all as indicated below.			
Program feature or option	Permitted in UL 864? (Y/N)	Possible settings	Settings permitted in UL 864
Second Stage Enabled	YES	Second Stage Enabled/Disabled (Free loop addresses base +7 to base +11)	Second Stage Enabled
AC Trouble	YES	Return Specific ULC Trouble/Free loop addresses base +2 to base +4	Reporting of ULC Specific trouble is permitted
Battery/Charger Trouble	YES	Return Specific ULC Trouble/Free loop addresses base +2 to base +4	Reporting of ULC Specific trouble is permitted
Ground Fault	YES	Return Specific ULC Trouble/Free loop addresses base +2 to base +4	Reporting of ULC Specific trouble is permitted

5.1 Circuit Types

Any failure on the SLC loop activates any configured NAC Circuits.

Attention: If the INX-10A has configured NAC circuits the Evacuation Rate or Strobe Rate MUST be set via the appropriate DIP switches or a trouble will sound. For more information see 6.2.3 Charger Settings, Synchronization Settings, NAC Input Settings on page 35 and 6.2.4 Setting Alert Rates, Evacuation Rates, NAC 5 Output Functions on page 36.

5.1.1 NAC (Output) Circuits Types

Signal

For audible devices such as bells and piezo mini-horns. While sounding, these follow the pattern appropriate for the condition;

- the configured Evacuation Code (default is Temporal Code) during Single-Stage Alarm
- Two-Stage General Alarm
- or the Alert Code during Two-Stage's Alert (First) Stage.

Strobe

For visual devices such as strobes that use no code pattern (they are continuous) and follow input contact.

Synchronized Strobes

For visual devices such as strobes that support Mircom/Amseco, System Sensor, Gentex, Wheelock proprietary code patterns, configure to the appropriate pattern.

DC Power Supply

Uses no code pattern (they are continuous) and cannot be silenced. Configured via DIP switches and is not allocated an SLC address.

5.2 Intelligent NAC Expander (INX) Modes

The INX-10A is capable of synchronizing signal rates internally or receiving the signals externally. The INX-10A also has the ability to synchronize the signal rates for another INX-10A in a Master - Slave relationship.

Attention: When using multiple INX-10A panels in a Master - Slave relationship, always assign a lower address to the master INX-10A panel.

5.2.1 INX Internal Sync Mode

In this mode all signal and sync strobe rates are produced in the INX-10A. When a NAC circuit is commanded by the FACP to turn on, the NAC output signals are produced based on how the DIP switches are configured.

The Sync Outputs will be activated when one of the NAC circuits has been activated. If two stage operation is used, Sync Output1 is to produce the rate for first stage signal and Sync Output 2 is to produce the second stage signal.

Set Dip SW3, Bit 8 to zero.

For information on configuring signal and strobe rates see Table 8 Setting Alert Rates, Evacuation Rates, NAC 5 Output Functions on page 36 and Table 9 Setting Strobe Types, NAC 1-3 Supply Settings, NAC 4 Output Function on page 37.

5.2.2 INX External Sync Mode

When one of the Sync Inputs is activated, the INX-10A outputs follow the signal pattern of the Sync Input. The INX-10A must be configured as a slave to operate in this mode.

All synchronization signals are supplied from the FACP or Master INX-10A.

To enable this mode for Bell Signals set Dip SW3, Bit 8 to one, and set Alert (Dip SW4, Bits 1-3) Evacuation (Dip SW4, Bits 4-6) and Strobe (Dip SW5, Bits 1-3) rates to zero. The NAC and Sync outputs are to follow the Sync Inputs.

To enable this mode for other signals for sync Horn Strobes, set Dip SW3, Bit 8 to one and set Alert (Dip SW4, Bits 1-3) and Evacuation (Dip SW4, Bits 4-6) to use the Stobe Manufacturer Sync Rate (1-0-0) and Strobe (Dip SW5, Bits 1-3) to match the protocol being used in the system. The NAC and Sync Outputs are to follow the Sync Inputs.

If the INX-10A loses synchronization with the FACP during alarm, the INX-10A will default to the internal configured rate. A trouble will be generated back to the FACP. The INX-10A will continue to use the default rate until the FACP is reset.

Attention: External Sync Mode cannot be used in conjunction with Independent Mode.

5.2.3 INX Mode with Redundant Input

The system continuously monitors the SLC loop. If there is no activity for a notable time (80 seconds typical), an SLC trouble will be generated. While SLC trouble is active, if either of the Sync Inputs are activated then all NAC outputs follow.

5.2.4 Independent Mode - Driving Signals and Strobes

The INX-10A can drive Signals and Strobes on separate NAC circuits.

To enabled Independent Mode set SW4 Bit 4-6 to 010, 110, 001, 101, or 011 and set SW5 Bit 1-3 to 100, 110, 001 or 101. When using a Two stage application SW4 bits 1-3 are required to set the alert rate. For a comprehensive description of Independent Mode options see 6.5 Independent Mode Configuration Options on page 62.

5.3 Power Supply Modes

In addition to the operation modes above, some or all of the NAC outputs can be configured as power supply outputs. The circuit ratings are same as the NAC circuits. Three types of power output can be configured as described below:

5.3.1 NAC Outputs as Power Supply Outputs

Any NAC output can be configured as a power supply. SLC and Sync Inputs are ignored for the power supply outputs.

For configuration information see Chapter 6.2.4 Setting Alert Rates, Evacuation Rates, NAC 5 Output Functions on page 36 and Chapter 6.2.5 Setting Strobe Types, NAC 1-3 Supply Settings, NAC 4 Output Function on page 37.

5.3.2 NAC Outputs for Door Release

Only NAC 4 and/or 5 can configured for this option, NAC 4 or 5 are turned off (cut supply) when any alarm input is active. This is used for devices which must be un-powered during alarm like door releases.

For configuration information see Chapter 6.2.4 Setting Alert Rates, Evacuation Rates, NAC 5 Output Functions on page 36 and Chapter 6.2.5 Setting Strobe Types, NAC 1-3 Supply Settings, NAC 4 Output Function on page 37.

5.3.3 NAC Outputs for 4 Wire Smoke Supply

Only NAC 4 and/or 5 can configured for this option, NAC 4 and 5 can be selected to turn-off for 2 seconds when an alarm ends (inputs inactive for more than five seconds). This is typically used to reset four wires detectors.

For configuration information see Chapter 6.2.5 Setting Strobe Types, NAC 1-3 Supply Settings, NAC 4 Output Function on page 37.

5.4 Evacuation Codes

5.4.1 Single stage codes

Continuous

On 100% of the time.

Temporal Code

0.5 second on, 0.5 second off, 0.5 second on, 0.5 second off, 0.5 second on, 0.5, 1.5 second off, then repeat.

March Code

0.5 second on, 0.5 second off.

California Code

5 seconds on, 10 seconds off.

5.4.2 Two-stage codes

Alert Code

0.5 second on, 2.5 seconds off.

General Alarm

Evacuation code as selected from above.

5.5 Horn Strobe Rates

Horn Strobe rates are fixed at the following rates.

5.5.1 Single Stage

Temporal Code

3 of 0.5 second on, 0.5 second off, 1.5 second pause, then repeat.

5.5.2 Two-stage codes

Alert Code

0.5 second on, 2.5 seconds off.

Temporal Code

3 of 0.5 second on, 0.5 second off, 1.5 second pause, then repeat.

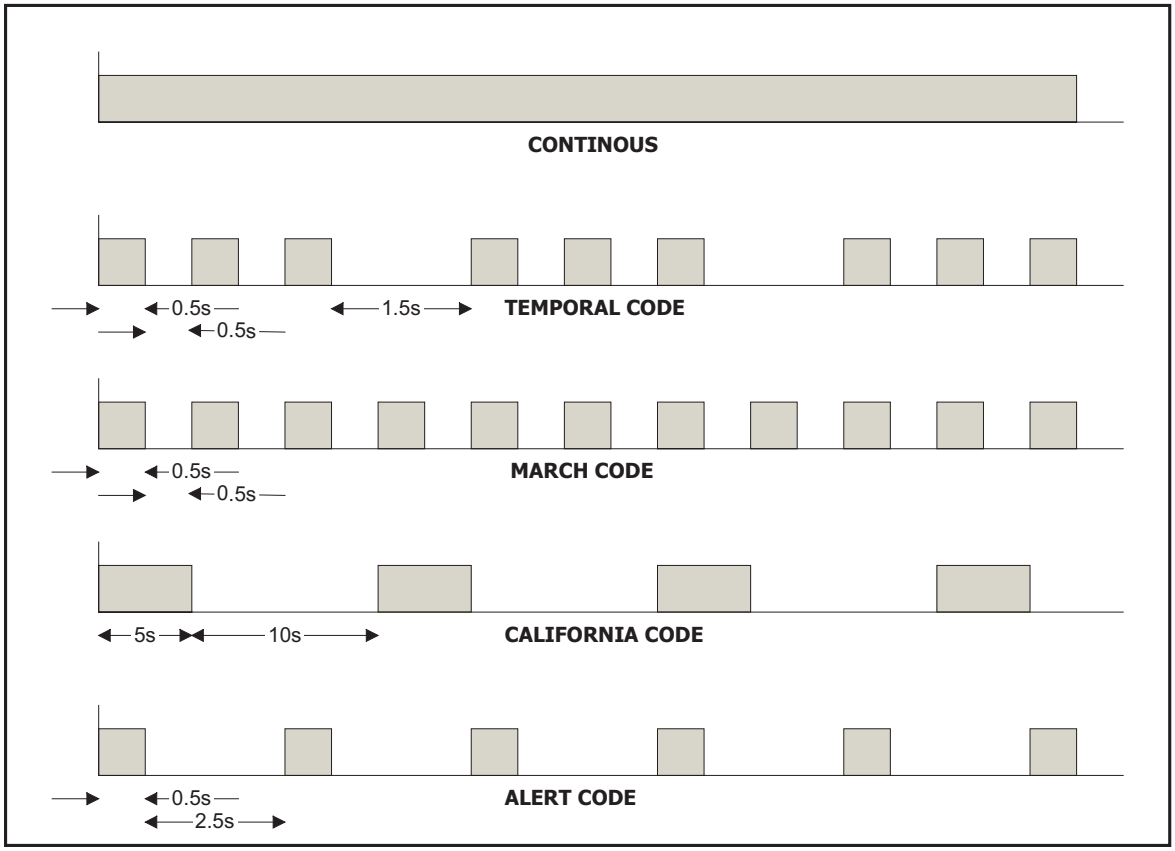


Figure 9 Evacuation Codes

6.0 Configuration

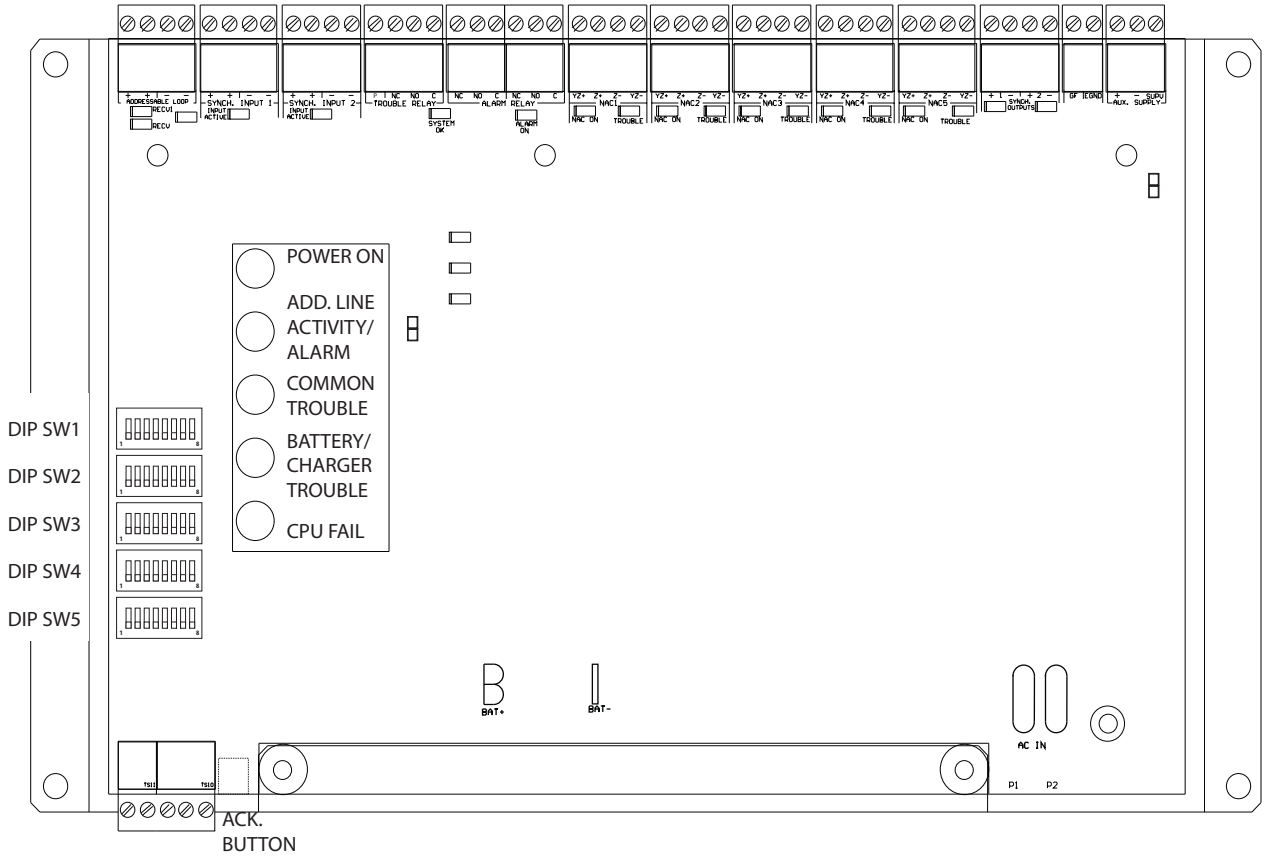
The chapter describes how to configure the INX-10A with the DIP switches located on the main board.

This chapter explains

- Using DIP Switches
- Single Stage and Two Stage Addressing
- Adding Functions in the FX-2000 configurator
- Assigning Protocols
- Trouble Reporting
- AC Fail Delay
- Charger and Battery Settings
- Synchronization Settings
- Configuring NAC's
- Alert and Evacuation Rates
- Strobe Types

6.1 Dip Switches

The following diagram displays the five DIP switches used by the INX-10A.



6.1.1 Using the DIP switches

Configuring the INX-10A is done with 5 banks of DIP switches. They are named SW1, SW2, SW3, SW4 and SW5. Each bank has 8 switches, numbered 1 to 8. Flipping a switch up places it in the ON position. **For the purposes of the configuration tables ON = 1 and OFF = 0**. For an illustration of the DIP switch settings see Figure 10.

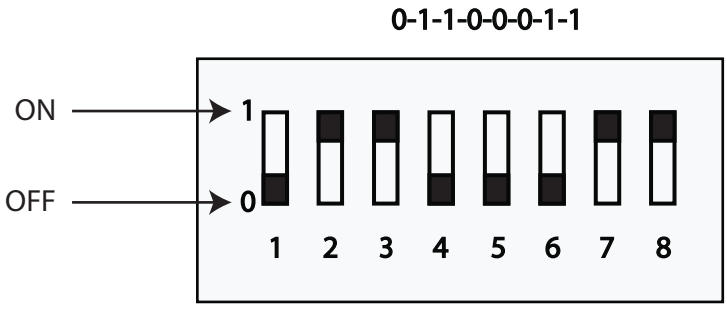


Figure 10 DIP switch positions

6.2 DIP Switch Configuration

Configuration is done via a group a five DIP switches located to the left of the LED display board.

6.2.1 Setting Loop Base Address, Disabling Addressable Loop Interface

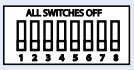
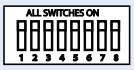
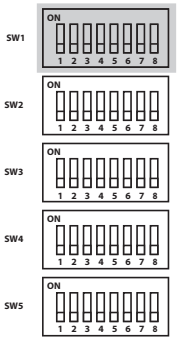
Use DIP switch 1 to

- Enable or disable the addressable loop.
- Set the Base Address of the INX-10A.

To configure the desired address, refer to Figure 11 and Table 5.

To disable, configure all switches to 0.

Table 4 Setting INX-10A Base Address/ Disabling Addressable Loop Interface

DIP switch 1	Switch #	Default Setting = 0 	Activated Setting = 1 	Notes/ Additional Diagrams
	All (1-8)	Addressable Loop Disabled	Sets the INX-10A base address. For an addressing example see Figure 11.	

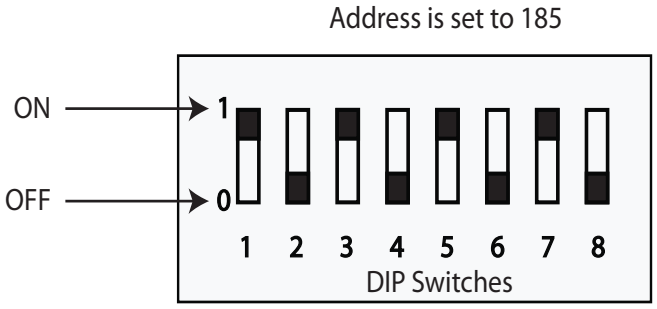


Figure 11 DIP switch address example

Table 5 INX-10A Base Address DIP switch positions

Address	Switch Setting	Address	Switch Setting	Address	Switch Setting	Address	Switch Setting	
101	1000 0000	126	0101 1000	151	1100 1100	176	0011 0010	
102	0100 0000	127	1101 1000	152	0010 1100	177	1011 0010	
103	1100 0000	128	0011 1000	153	1010 1100	178	0111 0010	
104	0010 0000	129	1011 1000	154	0110 1100	179	1111 0010	
105	1010 0000	130	0111 1000	155	1110 1100	180	0000 1010	
106	0110 0000	131	1111 1000	156	0001 1100	181	1000 1010	
107	1110 0000	132	0000 0100	157	1001 1100	182	0100 1010	
108	0001 0000	133	1000 0100	158	0101 1100	183	1100 1010	
109	1001 0000	134	0100 0100	159	1101 1100	184	0010 1010	
110	0101 0000	135	1100 0100	160	0011 1100	185	1010 1010	Two Stage Application with Enhanced Reporting
111	1101 0000	136	0010 0100	161	1011 1100	186	0110 1010	
112	0011 0000	137	1010 0100	162	0111 1100	187	1110 1010	
113	1011 0000	138	0110 0100	163	1111 1100	188	0001 1010	Two Stage Application with Basic Reporting
114	0111 0000	139	1110 0100	164	0000 0010	189	1001 1010	
115	1111 0000	140	0001 0100	165	1000 0010	190	0101 1010	Single Stage Application with Enhanced Reporting
116	0000 1000	141	1001 0100	166	0100 0010	191	1101 1010	
117	1000 1000	142	0101 0100	167	1100 0010	192	0011 1010	
118	0100 1000	143	1101 0100	168	0010 0010	193	1011 1010	Single Stage Application with Basic Reporting
119	1100 1000	144	0011 0100	169	1010 0010	194	0111 1010	
120	0010 1000	145	1011 0100	170	0110 0010	195	1111 1010	
121	1010 1000	146	0111 0100	171	1110 0010	196	0000 0110	
122	0110 1000	147	1111 0100	172	0001 0010	197	1000 0110	
123	1110 1000	148	0000 1100	173	1001 0010	198	0100 0110	
124	0001 1000	149	1000 1100	174	0101 0010	199	1100 0110	
125	1001 1000	150	0100 1100	175	1101 0010			

Attention: When using multiple INX-10A panels in a Master - Slave relationship, always assign a lower address to the master INX-10A panel.

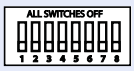
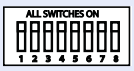
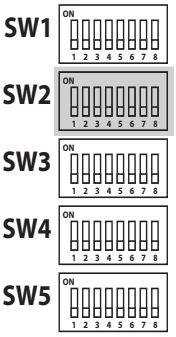
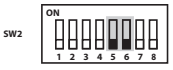
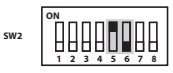
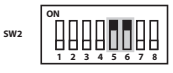
Notes: Shaded addresses are the recommended range of addresses used for a single INX-10A.

Ensure that there are enough addresses for reporting and configured NACs. The highest address that a Single Stage Application with Basic Reporting with 5 configured NACs can be assigned is **193**.

6.2.2 Setting Protocols, Reporting, Charger, Battery Installed

Use DIP switch 2 to set device protocols, enable second stage reporting, set AC fail reporting, enabling or disabling the Charger, and if a battery is installed.

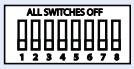
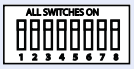
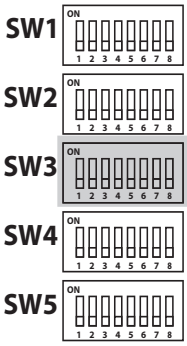
Table 6 Setting Protocols, Enabling Second Stage, Setting AC Fail Reporting, Enabling Charger, Battery Installed

DIP switch 2	Switch #	Default Setting = 0 	Activated Setting = 1 	Notes/ Additional Diagrams
	1	Reserve		
	2	Setting for Mircom FACPs	Setting for Secutron and other non-Mircom FACPs	For non-Mircom panels Signal Silence must be configured as a Control module in the proprietary configuration software.
	3	Enable Enhanced Reporting (AC, Battery/ Charger and Earth Ground) *See Board LED's for further trouble shooting*	Free loop addresses base +2 to base +4	Base address is set by SW1
	4	Second Stage Enabled	Free loop addresses base +8 to base +12 or if Enhanced Reporting is enabled frees addresses base +11 to base +15	Base address is set by SW1
	5-6	Configure Report Delay for AC fail The digits below refer to the corresponding bit number i.e. 01 means that bit 5 = 0 and bit 6 = 1 see corresponding diagram		
	5-6	00 = No Delay		
	5-6	10 = One Hour		
	5-6	01 = Two Hours		
	5-6	11 = Three Hours		
	7	Charger Enabled	Charger Disabled	
	8	Battery Installed	No Battery Required and Charger Disabled	

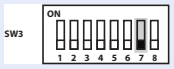
6.2.3 Charger Settings, Synchronization Settings, NAC Input Settings

Use DIP switch 3 to configure charger, synchronization and NAC Input settings.

Table 7 Charger Settings, Synchronization Settings, NAC Input Settings

DIP switch 3	Switch #	Default Setting = 0 	Activated Setting = 1 	Notes/ Additional Diagrams
	1	Charger Cut When all NAC's activated	Charger Always "ON"	Remember Bit 7 on DIP Switch 2 must be set to "OFF" to enable Charger
	2-6	Reserve		
	7	Independent Mode NAC 1 and 2 = Signals Configured NAC's = Sync Strobes	Independent Mode NAC 1 to 3 = Signals Configured NAC's = Sync Strobes	For a comprehensive description of Independent Mode options see 6.5 Independent Mode Configuration Options on page 62
		Independent mode is active if SW4 Bit 4-6 Evacuation Rates is set to 010, 110, 001, 101, or 011 **AND** SW5 Bit 1-3 Setting Strobe Manufacturer Type set to 100, 110, 001 or 101.		
	8	Synchronous Signal Master	Synchronous Signal Slave	

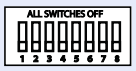
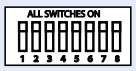
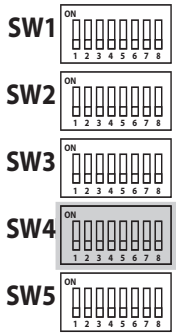
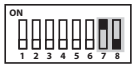
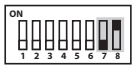
Attention: If Independent Mode is not being used SW3-7 must be set to OFF.



6.2.4 Setting Alert Rates, Evacuation Rates, NAC 5 Output Functions

Use DIP switch 4 to configure Alert and Evacuation Rates, and NAC Output functions.

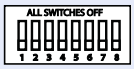
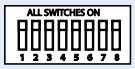
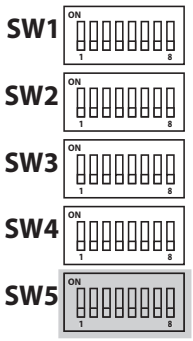
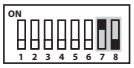
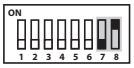
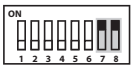
Table 8 Setting Alert Rates, Evacuation Rates, NAC 5 Output Functions

DIP switch 4	Switch #	Default Setting = 0 	Activated Setting = 1 	Notes/ Additional Diagrams
	1-3	**Setting Alert Rates NOT USED FOR SINGLE STAGE APPLICATIONS**		
	1-3	000 - Disable (No Output)		
	1-3	100 - Uses Strobe Manufacturer Sync Rate		
	1-3	010 - Continuous		
	1-3	110 - 0.5s ON, 2.5s OFF, Repeat (20 PPM as in FA-1000 or FX-2000)		
	1-3	001 - 20 PPM, 50% Duty Cycle		
	4-6	**Setting Evacuation Rates**		
	4-6	000 - Disable **If the INX-10A has NAC circuits configured the Evacuation Rate or Strobe Rate MUST be enabled or a trouble will sound.**		
	4-6	100 - Uses Strobe Manufacturer Sync Rate **NOT AFFECTED BY SIGNAL SILENCE**		
	4-6	010 - Continuous		
	4-6	110 - Temporal		
	4-6	001 - March Time		
	4-6	101 - California		
	4-6	011 - 120 PPM, 50% Duty Cycle		
	7-8	**NAC 5 Output Settings**		
	7-8	00 - Normal NAC		
	7-8	10 - Continuous Supply		
	7-8	01 - Cut on Alarm		
	7-8	11 - 2 Seconds Cut on Reset		

6.2.5 Setting Strobe Types, NAC 1-3 Supply Settings, NAC 4 Output Function

Use DIP switch 5 to configure Strobe types, NAC 1-3 settings and NAC 4 output functions.

Table 9 Setting Strobe Types, NAC 1-3 Supply Settings, NAC 4 Output Function

DIP switch 5	Switch #	Default Setting = 0 	Activated Setting = 1 	Notes/ Additional Diagrams
	1-3	**Setting Strobe Manufacturer**		
	1-3	000 - Disable **If the INX-10A has NAC circuits configured the Evacuation Rate or Strobe Rate MUST be enabled or a trouble will sound.**		
	1-3	100 - Mircom/Amseco		
	1-3	010 - Not Used		
	1-3	110 - System Sensor		
	1-3	001 - Secutron/Gentex		
	1-3	101 - Wheelock		
	4	NAC 1 - NAC	NAC 1 - Continuous Supply	
	5	NAC 2 - NAC	NAC 2 - Continuous Supply	
	6	NAC 3 - NAC	NAC 3 - Continuous Supply	
	7-8	**NAC 4 Output Settings**		
	7-8	00 - NAC		
	7-8	10 - Continuous Supply		
	7-8	01 - Cut on Alarm		
	7-8	11 - 2 seconds Cut on Reset		

6.3 Single Stage Addressing

Address Assignments are done via DIP switch 2(SW2) which is located to the left of the Main LED display board. The addresses for the functions are dependant upon the Base Address of the INX Panel.

There are two types of addressing options

- Basic Reporting
- Enhanced Reporting

In addition, the addressing can be changed by having NACs configured as Power Supplies. For further information on setting the Base Address of the INX Panel see Figure 11.

6.3.1 Single Stage with Basic Reporting Addressing

To configure the recommended base address

Set DIP switch SW1 as: 1-0-1-1-1-0-1-0

ON-OFF-ON-ON-ON-OFF-ON-OFF

To configure the INX for Single Stage with Basic Reporting in a Mircom system

Set DIP switch SW2-1 to SW2-4 as: 0-0-1-1

OFF-OFF-ON-ON

To configure the INX for Single Stage with Basic Reporting in a Secutron system

Set DIP switch SW2-1 to SW2-4 as: 0-1-1-1

OFF-ON-ON-ON

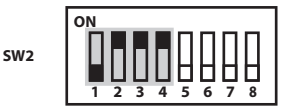


Table 10 Configuring Single Stage Functions

Function	Address	Recommended Address
Common Trouble	Base Address	193
Signal Silence	Base Address + 1	194
Activate NAC1, return NAC1 line status	Base Address + 2	195
Activate NAC2, return NAC2 line status	Base Address + 3	196
Activate NAC3, return NAC3 line status	Base Address + 4	197
Activate NAC4, return NAC4 line status	Base Address + 5	198
Activate NAC5, return NAC5 line status	Base Address + 6	199

Notes: Table 10 represents all NACs configured as NAC circuits.

Mircom recommends always using the upper range of addresses available for the INX-10A.

If any NAC circuit is configured as a Power Supply see 6.3.3 Single Stage with Basic Reporting and Power Supply Output Addressing for an explanation on addressing.

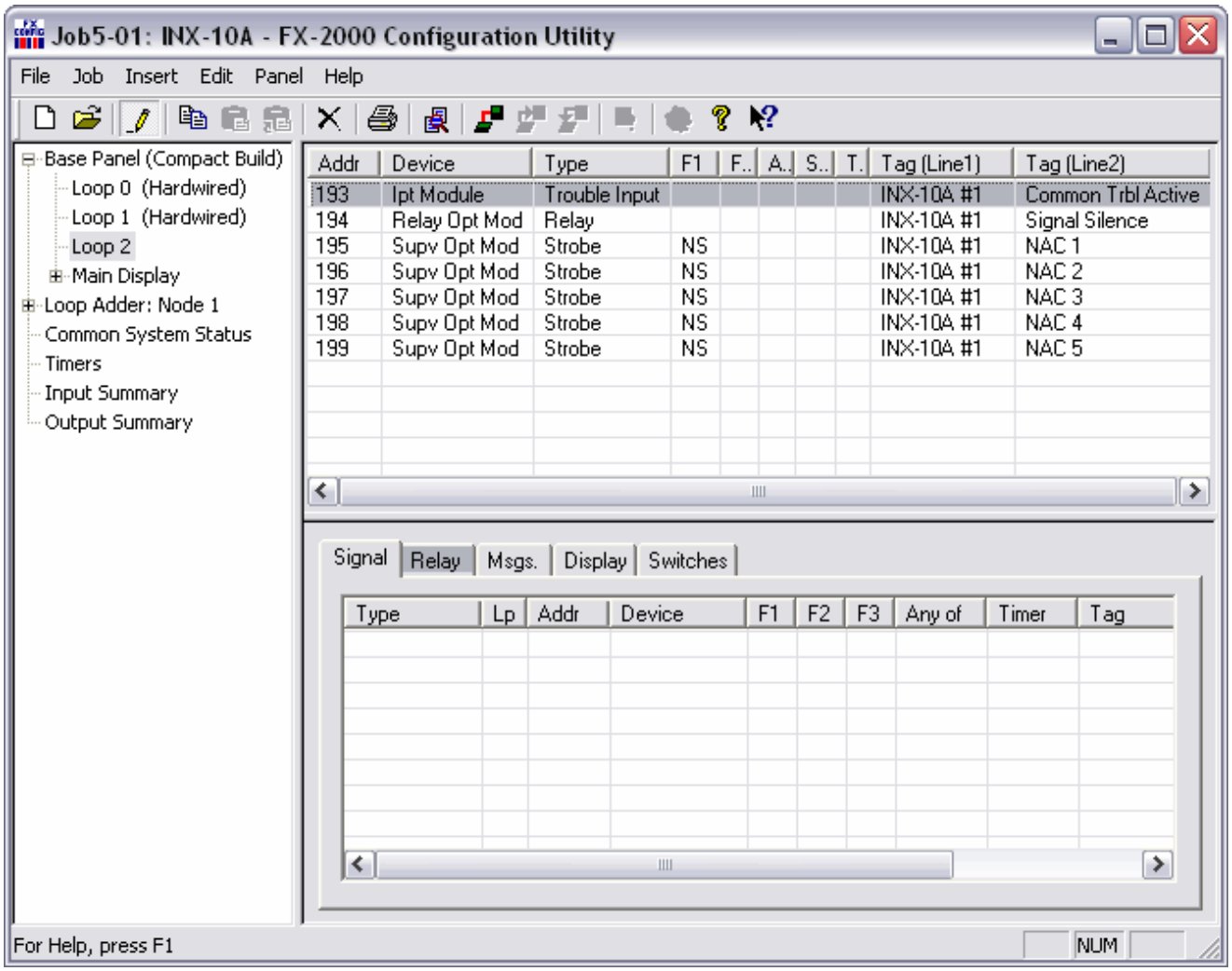


Figure 12 FX-2000 Configurator Settings - INX-10A Single Stage with Basic Reporting

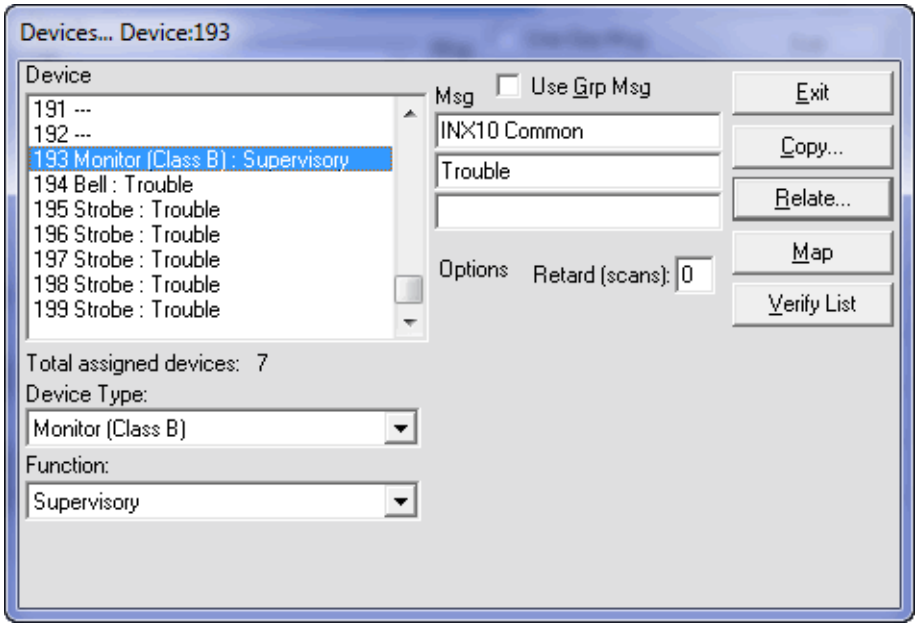


Figure 13 Secutron Configuration Settings - INX-10A Single Stage with Basic Reporting

6.3.2 Single Stage with Enhanced Trouble Reporting Addressing

To configure the recommended base address

Set DIP switch SW1 as: 0-1-0-1-1-0-1-0

OFF-ON-OFF-ON-ON-OFF-ON-OFF

To configure the INX for Single Stage with Enhanced Trouble Reporting in a Mircom System

Set DIP switch SW2-1 to SW2-4 as: 0-0-0-1

OFF-OFF-OFF-ON

To configure the INX for Single Stage with Enhanced Trouble Reporting in a Secutron System

Set DIP switch SW2-1 to SW2-4 as: 0-1-0-1

OFF-ON-OFF-ON

Table 11 Configuring Single Stage with Enhanced Reporting Functions

Function	Address	Recommended Address
Common Trouble	Base Address	190
Signal Silence	Base Address + 1	191
Monitor AC trouble	Base Address + 2	192
Monitor Battery/Charger trouble	Base Address + 3	193
Monitor Earth Ground Fault	Base Address + 4	194
Activate NAC1, return NAC1 line status	Base Address + 5	195
Activate NAC2, return NAC2 line status	Base Address + 6	196
Activate NAC3, return NAC3 line status	Base Address + 7	197
Activate NAC4, return NAC4 line status	Base Address + 8	198
Activate NAC5, return NAC5 line status	Base Address + 9	199

Notes: Table 11 represents all NACs configured as NAC circuits.

Mircom recommends always using the upper range of addresses available for the INX-10A.

If any NAC circuit is configured as a Power Supply see 6.3.4 Single Stage with Enhanced Reporting and Power Supply Output Addressing for an explanation on addressing.

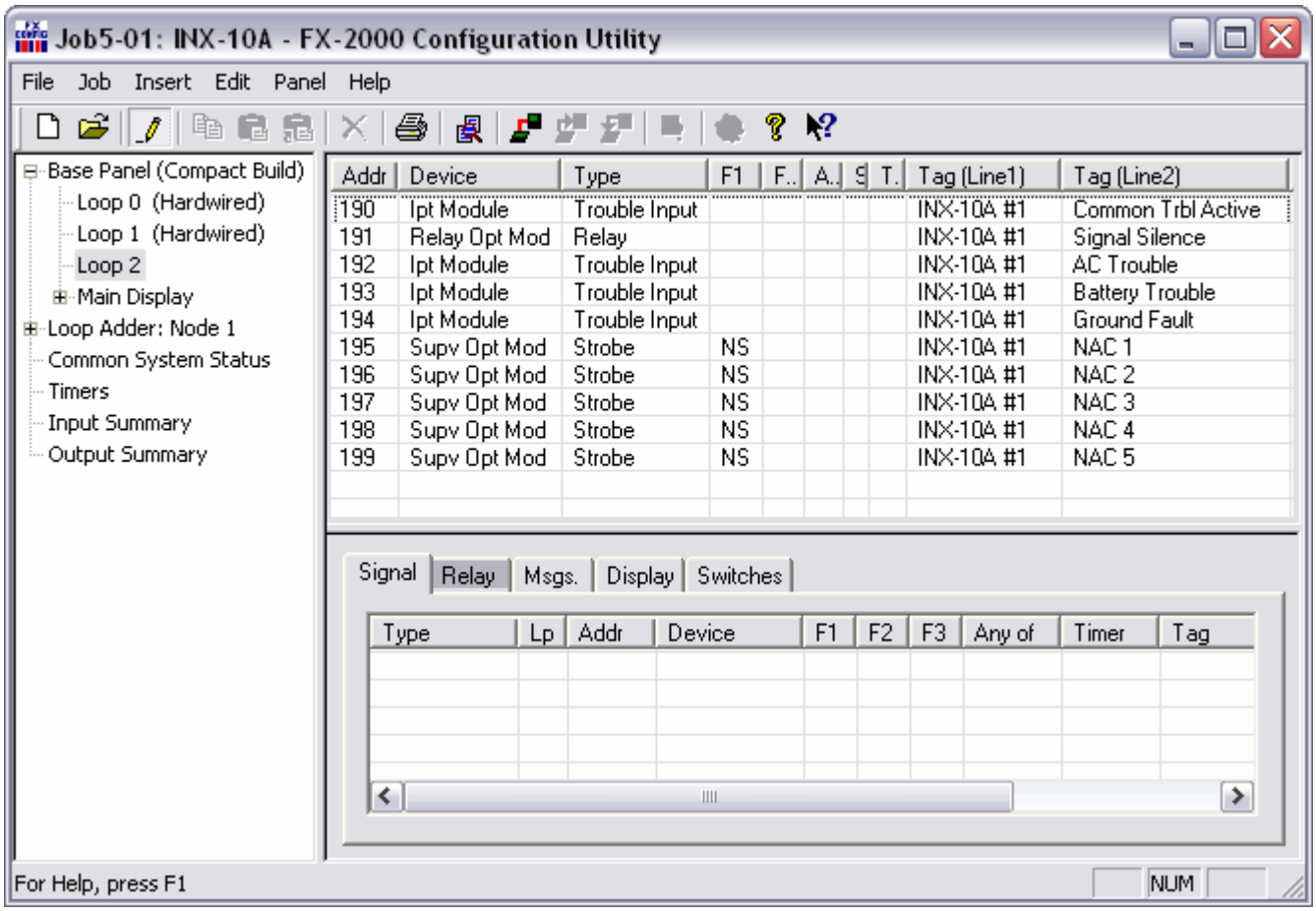


Figure 14 FX-2000 Configurator Settings - INX-10A Single Stage with Enhanced Reporting

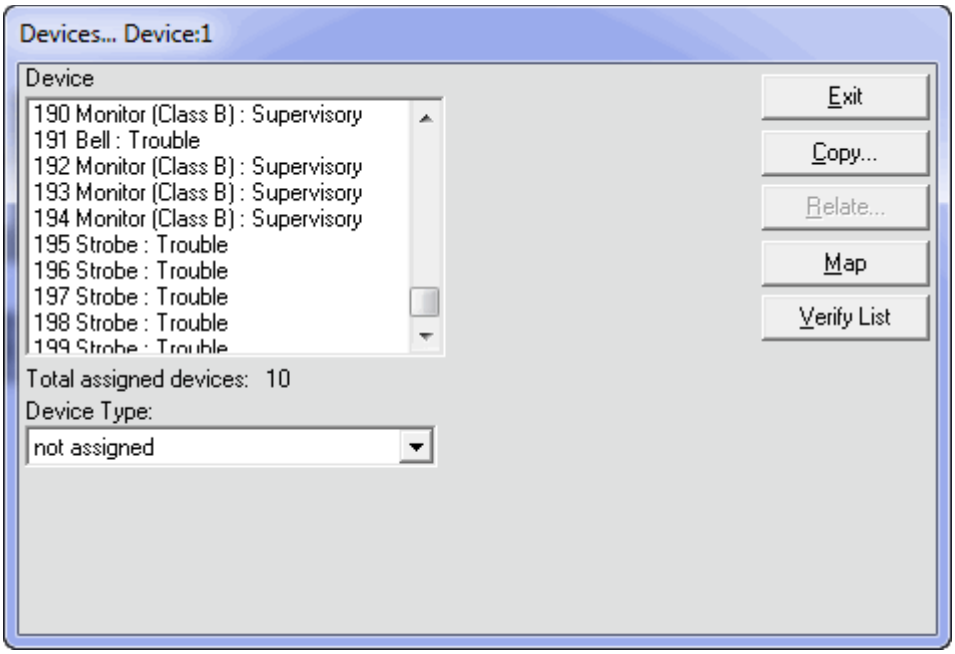


Figure 15 Secutron Configuration Settings - INX-10A Single Stage with Enhanced Reporting

6.3.3 Single Stage with Basic Reporting and Power Supply Output Addressing

In order to maximize the amount of addresses available, if a NAC circuit is configured as a Power Supply, the next configured NAC Circuit is assigned the address reserved for the previous Circuit.

Example Application

- NAC 5 configured as a Power Supply.
- INX-10A Common Trouble reporting address is 194.

To configure the recommended base address

Set DIP switch SW1 as: 0-1-1-1-1-0-1-0

OFF-ON-ON-ON-ON-OFF-ON-OFF

To configure the INX for Single Stage with Basic Reporting in a Mircom System

Set DIP switch SW2-1 to SW2-4 as: 0-0-1-1

OFF-OFF-ON-ON

To configure the INX for Single Stage with Basic Reporting in a Secutron System

Set DIP switch SW2-1 to SW2-4 as: 0-1-0-1

OFF-ON-OFF-ON

To configure NAC 5 as a Continuous Power Supply

Set DIP switch SW4-7 and SW4-8 as: 1-0

ON-OFF

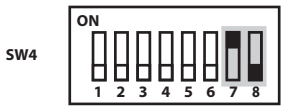


Table 12 Assigning Addresses - Single Stage with Basic Reporting and Power Supply Output

Function	Address	Recommended Address
Common Trouble	Base Address	194
Signal Silence	Base Address + 1	195
Activate NAC1, return NAC1 line status	Base Address + 2	196
Activate NAC2, return NAC2 line status	Base Address + 3	197
Activate NAC3, return NAC3 line status	Base Address + 4	198
Activate NAC4, return NAC4 line status	Base Address + 5	199

Notes: Mircom recommends always using the upper range of addresses available for the INX-10A.

Mircom recommends always using the upper range of NACs (NAC5 then NAC4 then NAC3 etc.) when configuring as a Power Supply.

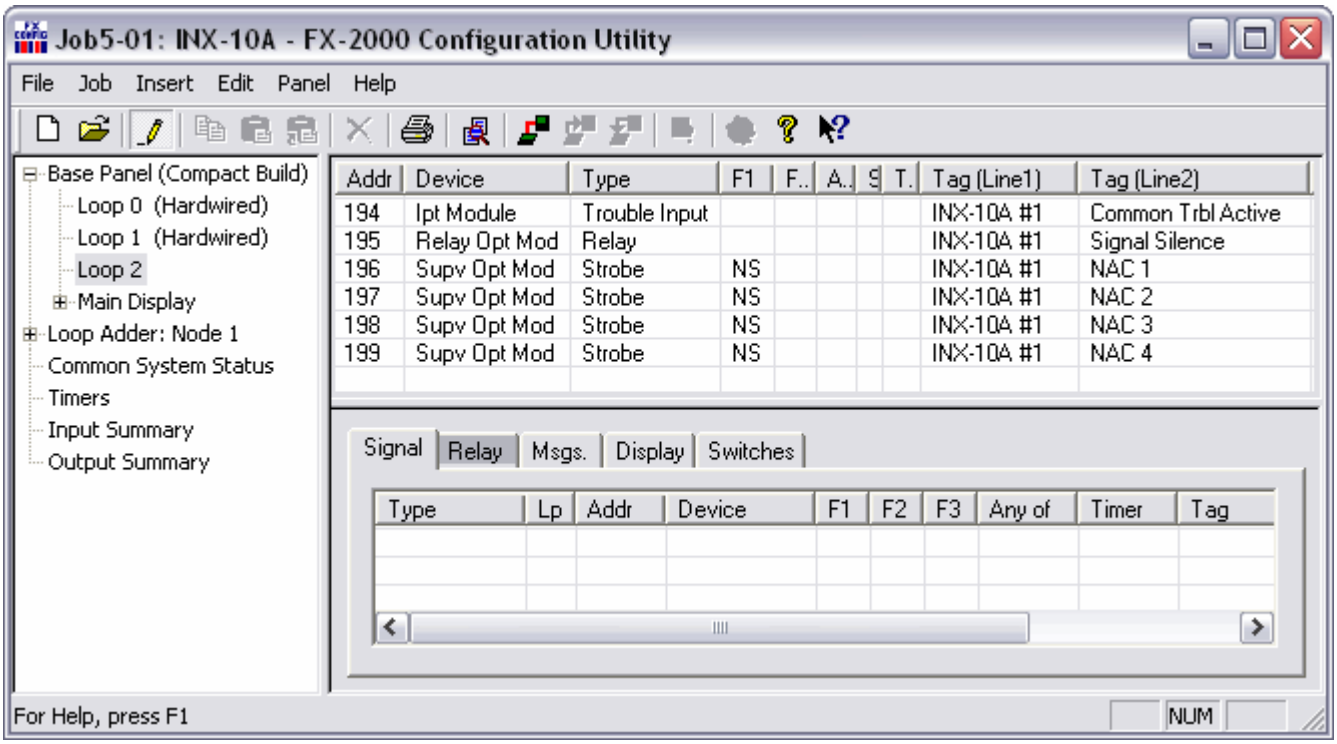


Figure 16 FX-2000 Configurator Settings - INX-10A Single Stage with Basic Reporting and Power Supply Output

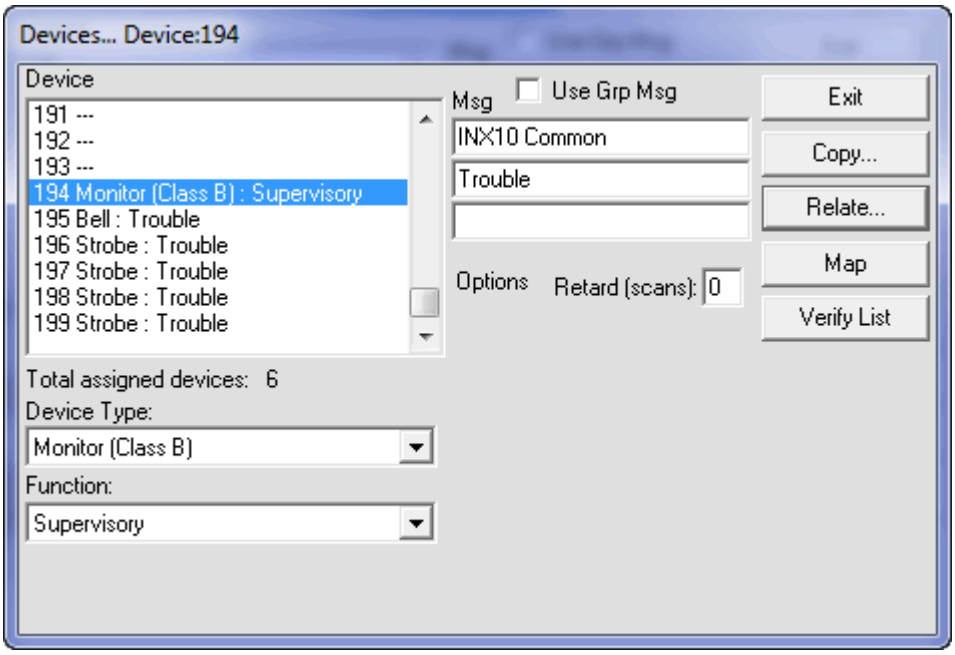


Figure 17 Secutron Configurator Settings - INX-10A Single Stage with Basic Reporting and Power Supply Output

6.3.4 Single Stage with Enhanced Reporting and Power Supply Output Addressing

In order to maximize the amount of addresses available, if a NAC circuit is configured as a Power Supply, the next configured NAC Circuit is assigned the address reserved for the previous Circuit.

Example Application

- NAC 5 configured as a Power Supply.
- INX-10A Common Trouble reporting address is 194.

To configure the recommended base address

Set DIP switch SW1 as: 1-1-0-1-1-0-1-0

ON-ON-OFF-ON-ON-OFF-ON-OFF

To configure the INX for Single Stage with Enhanced Reporting in a Mircom System

Set DIP switch SW2-1 to SW2-4 as: 0-0-0-1

OFF-OFF-OFF-ON

To configure the INX for Single Stage with Enhanced Trouble Reporting in a Secutron System

Set DIP switch SW2-1 to SW2-4 as: 0-1-0-1

OFF-ON-OFF-ON

To configure NAC 5 as a Continuous Power Supply

Set DIP switch SW4-7 and SW4-8 as: 1-0

ON-OFF

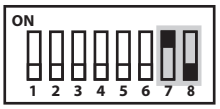


Table 13 Assigning Addresses - Single Stage Application, 1 Power Supply Output

Function	Address	Recommended Address
Common Trouble	Base Address	191
Signal Silence	Base Address + 1	192
Monitor AC trouble	Base Address + 2	193
Monitor Battery/Charger trouble	Base Address + 3	194
Monitor Earth Ground Fault	Base Address + 4	195
Activate NAC1, return NAC1 line status	Base Address + 5	196
Activate NAC2, return NAC2 line status	Base Address + 6	197
Activate NAC3, return NAC3 line status	Base Address + 7	198
Activate NAC4, return NAC4 line status	Base Address + 8	199

Notes: Mircom recommends always using the upper range of addresses available for the INX-10A.

Mircom recommends always using the upper range of NACs (NAC5 then NAC4 then NAC3 etc.) when configuring as a Power Supply.

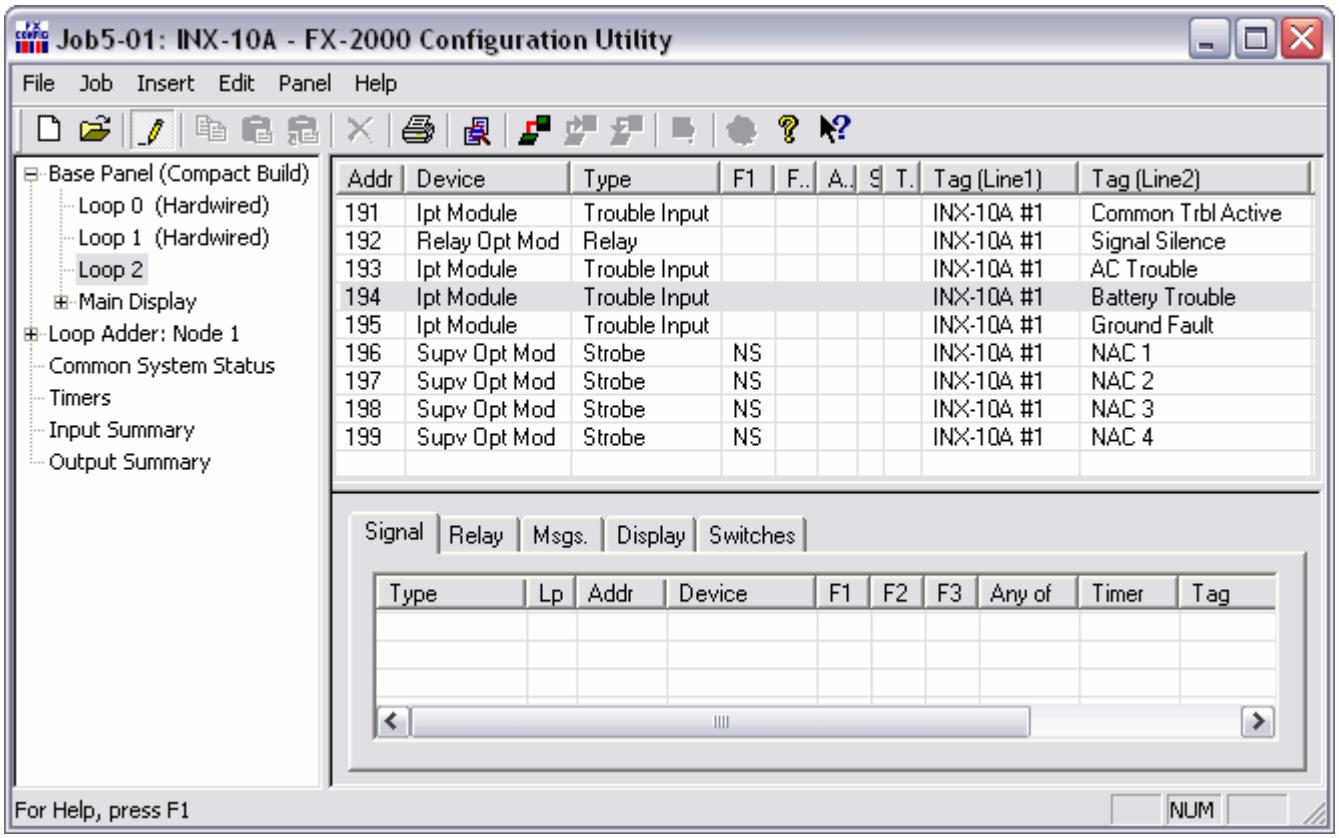


Figure 18 FX-2000 Configurator Settings - INX-10A Single Stage with Enhanced Reporting and Power Supply Output

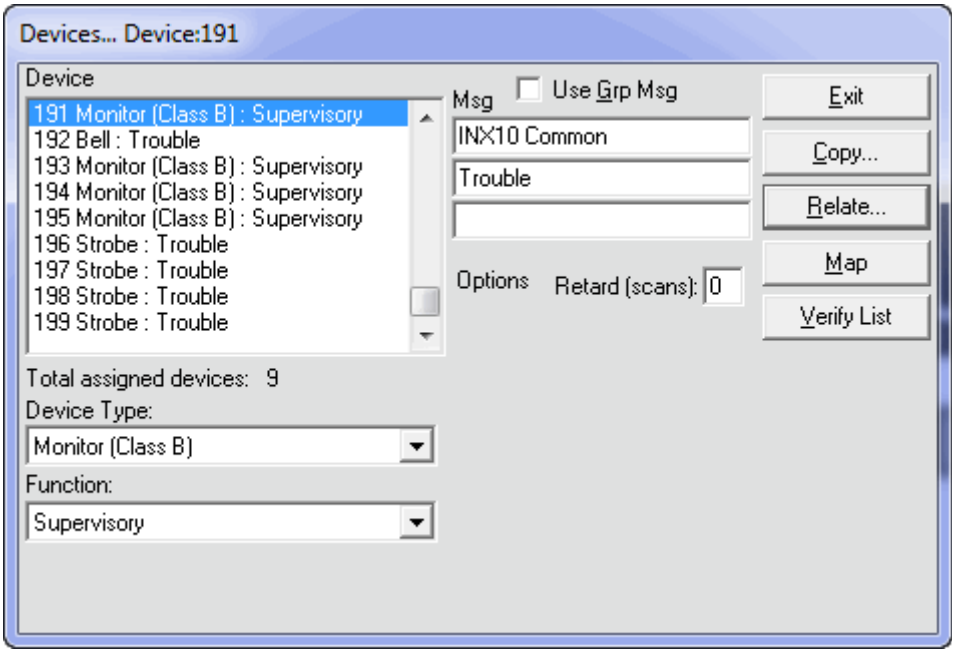


Figure 19 Secutron Configurator Settings - INX-10A Single Stage with Power Supply Output

6.4 Two Stage Addressing Options

Address Assignments are done via DIP switch 2(SW2) which is located to the left of the Main LED display board. The addresses for the functions are dependant upon the Base Address of the INX Panel.

For Further information on setting the Base Address of the INX Panel see Figure 11 DIP switch address example on page 32.

6.4.1 Two Stage with Basic Reporting Addressing

To configure the recommended base address

Set DIP switch SW1 as: 0-0-0-1-1-0-1-0

OFF-OFF-OFF-ON-ON-OFF-ON-OFF

To configure the INX for Two Stage with Basic Reporting in a Mircom system

Set DIP switch SW2-1 to SW2-4 as: 0-0-1-0

OFF-OFF-ON-OFF

To configure the INX for Single Stage with Basic Reporting in a Secutron system

Set DIP switch SW2-1 to SW2-4 as: 0-1-1-0

OFF-ON-ON-OFF

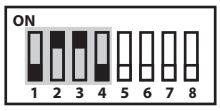


Table 14 Configuring Two Stage Functions

Function	Address	Recommended Address
Common Trouble	Base Address	188
Signal Silence	Base Address + 1	189
Activate NAC1, return NAC1 line status	Base Address + 2	190
Activate NAC2, return NAC2 line status	Base Address + 3	191
Activate NAC3, return NAC3 line status	Base Address + 4	192
Activate NAC4, return NAC4 line status	Base Address + 5	193
Activate NAC5, return NAC5 line status	Base Address + 6	194
Second Stage NAC1	Base Address + 7	195
Second Stage NAC2	Base Address + 8	196
Second Stage NAC3	Base Address + 9	197
Second Stage NAC4	Base Address + 10	198
Second Stage NAC5	Base Address + 11	199

Notes: Table 14 represents all NACs configured as NAC circuits.

Mircom recommends always using the upper range of addresses available for the INX-10A.

If any NAC circuit is configured as a Power Supply see 6.4.3 Two Stage with Basic Reporting and Power Supply Output Addressing for an explanation on addressing.

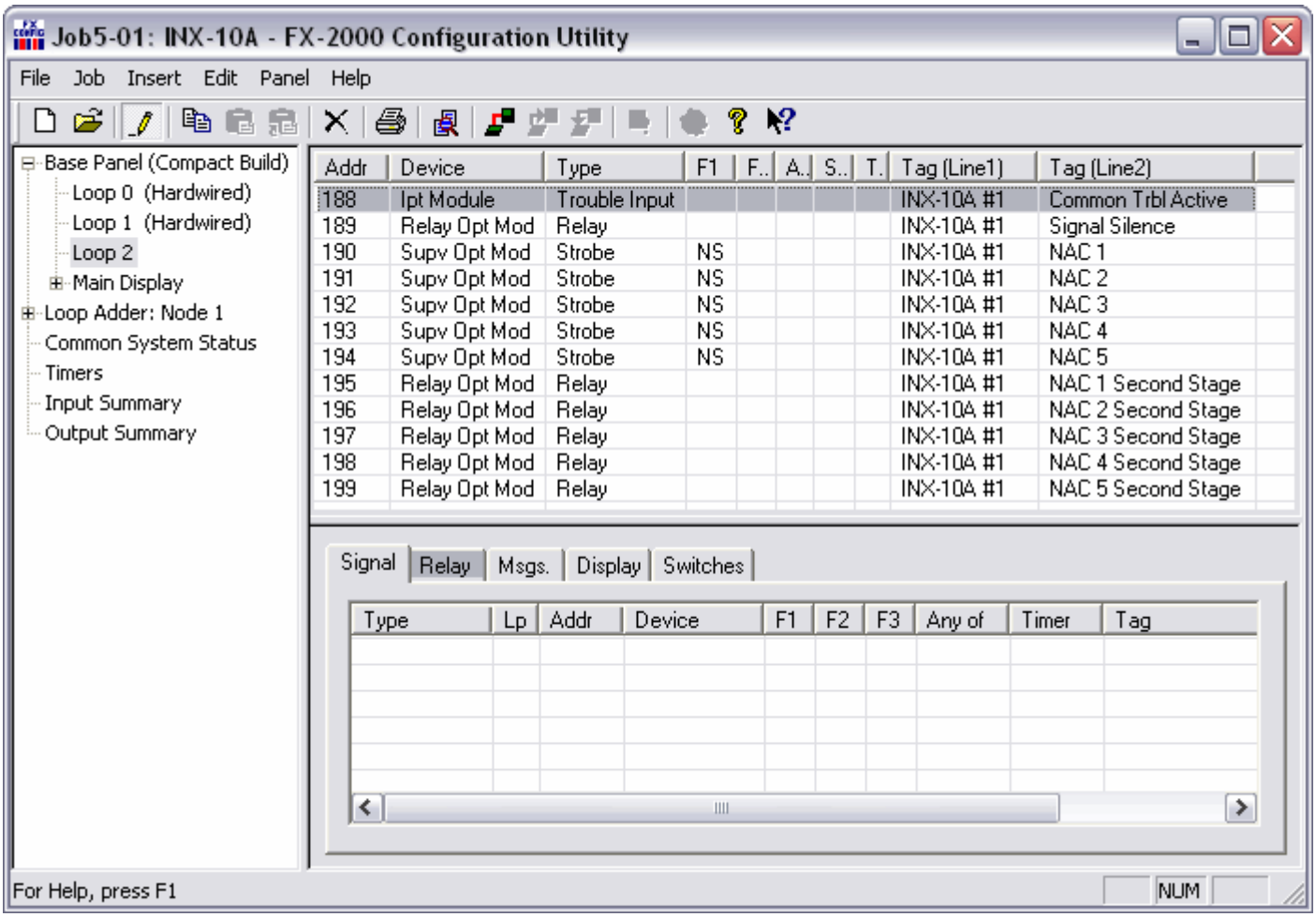


Figure 20 FX-2000 Configurator Settings - INX-10A Two Stage with Basic Reporting

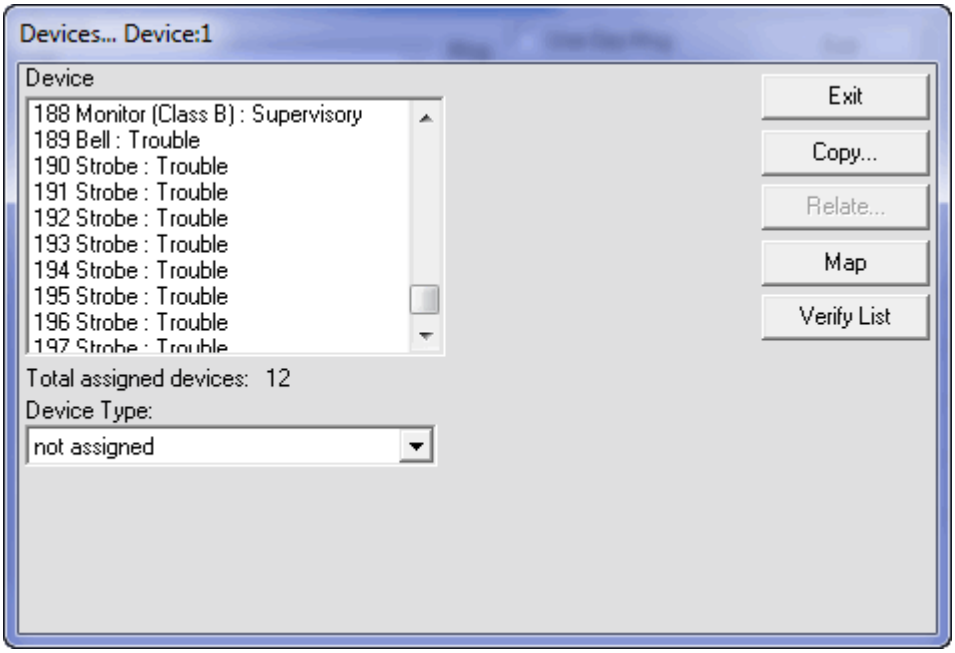


Figure 21 Secutron Configurator Settings - INX-10A Two Stage with Basic Reporting

6.4.2 Two Stage Address Assignment with Enhanced Trouble Reporting

To configure the recommended base address

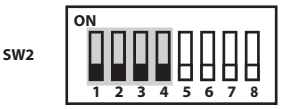
Set DIP switch SW1 as: 1-0-1-0-1-0-1-0

ON-OFF-ON-OFF-ON-OFF-ON-OFF

To configure the INX for Two Stage with Enhanced Trouble Reporting in a Mircom System

Set DIP switch SW2-1 to SW2-4 as: 0-0-0-0

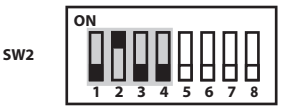
OFF-OFF-OFF-OFF



To configure the INX for Two Stage with Enhanced Trouble Reporting in a Secutron System

Set DIP switch SW2-1 to SW2-4 as: 0-1-0-1

OFF-ON-OFF-ON



Attention: Two Stage Enhanced reporting is mandatory to meet ULC requirements.

Table 15 Configuring Two Stage Address Assignment with Enhanced Trouble Reporting

Function	Address	Recommended Address
Common Trouble	Base Address	185
Signal Silence	Base Address + 1	186
Monitor AC trouble	Base Address + 2	187
Monitor Battery/Charger trouble	Base Address + 3	188
Monitor Earth Ground Fault	Base Address + 4	189
Activate NAC1, return NAC1 line status	Base Address + 5	190
Activate NAC2, return NAC2 line status	Base Address + 6	191
Activate NAC3, return NAC3 line status	Base Address + 7	192
Activate NAC4, return NAC4 line status	Base Address + 8	193
Activate NAC5, return NAC5 line status	Base Address + 9	194
Second Stage NAC1	Base Address + 10	195
Second Stage NAC2	Base Address + 11	196

Table 15 Configuring Two Stage Address Assignment with Enhanced Trouble Reporting (Continued)

Function	Address	Recommended Address
Second Stage NAC3	Base Address + 12	197
Second Stage NAC4	Base Address + 13	198
Second Stage NAC5	Base Address + 14	199

Notes: Table 15 on the previous page represents all NACs configured as NAC circuits.

Mircom recommends always using the upper range of addresses available for the INX-10A.

If any NAC circuit is configured as a Power Supply see 6.4.4 Two Stage Address Assignment with Enhanced Trouble Reporting and Power Supply Addressing for an explanation on addressing.

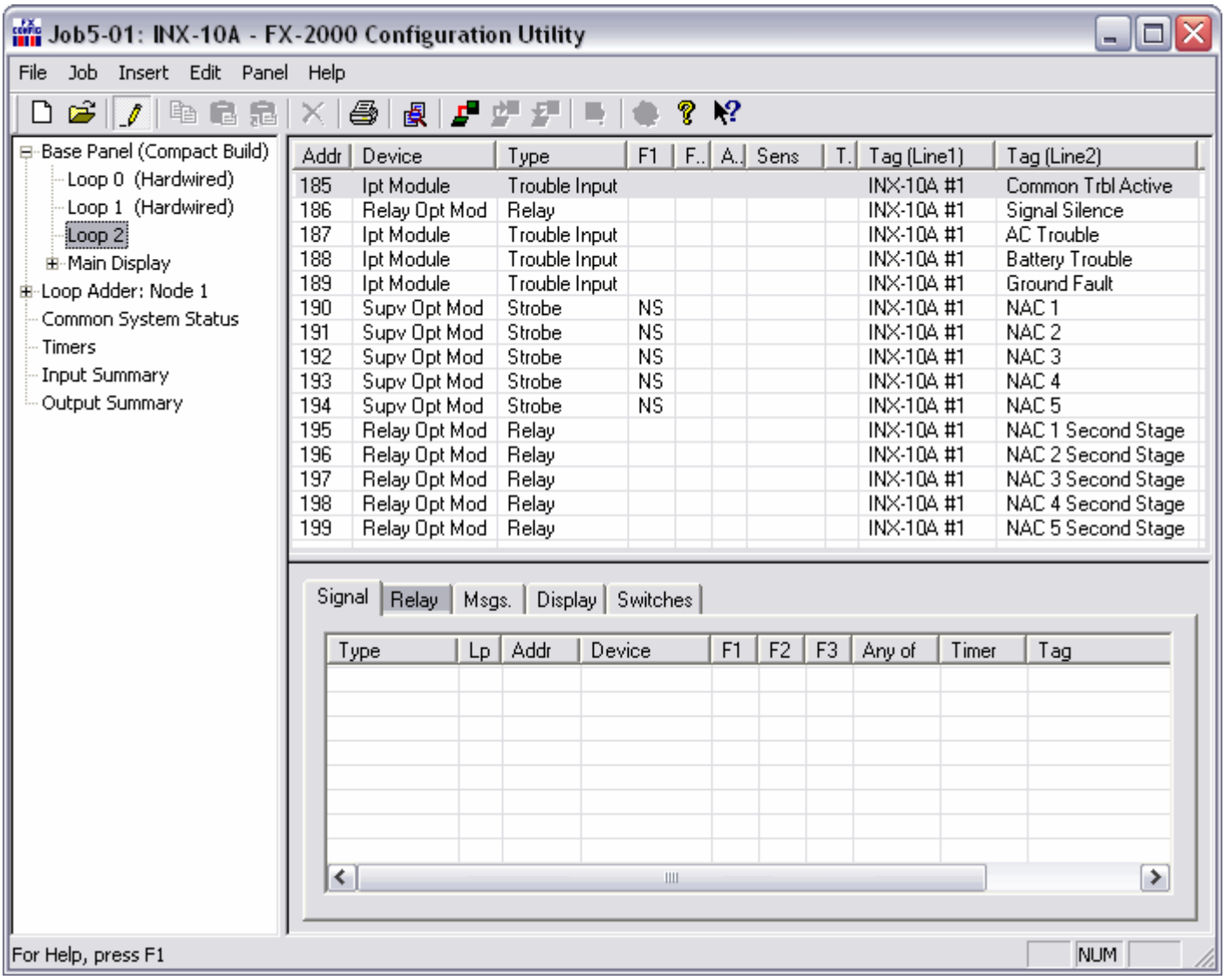


Figure 22 FX-2000 Configurator Settings - INX-10A Two Stage with Enhanced Reporting

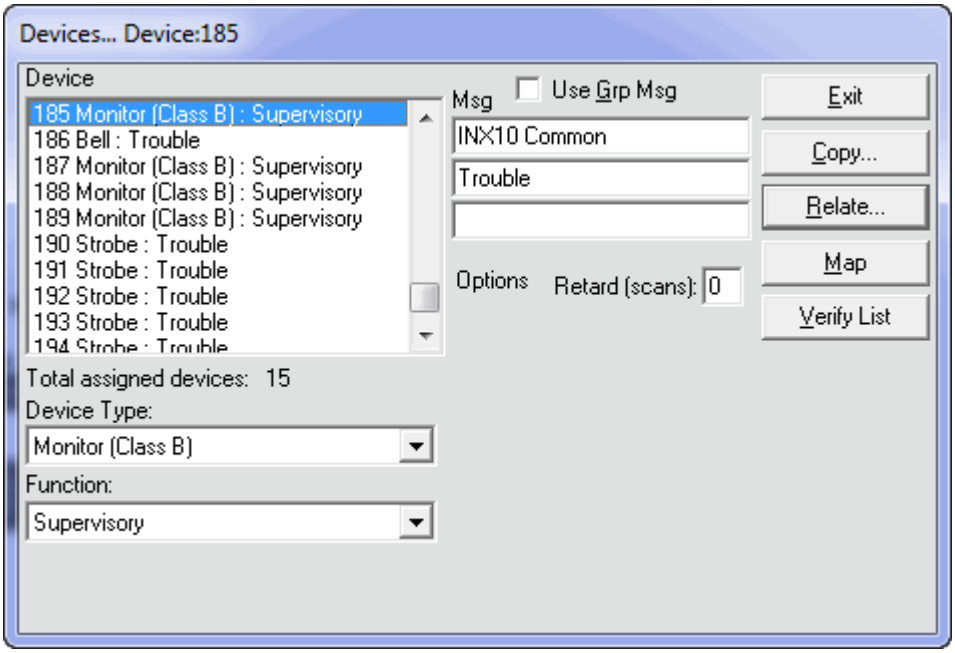


Figure 23 Secutron Configurator Settings - INX-10A Two Stage with Enhanced Reporting

6.4.3 Two Stage with Basic Reporting and Power Supply Output Addressing

In order to maximize the amount of addresses available, if a NAC circuit is configured as a Power Supply, the next configured NAC Circuit is assigned the address reserved for the previous Circuit.

Example Application

- NAC 5 configured as a Power Supply.
- INX-10A Common Trouble reporting address is 190.

To configure the recommended base address

Set DIP switch SW1 as: 0-1-0-1-1-0-1-0

OFF-ON-OFF-ON-ON-OFF-ON-OFF

To configure the INX for Two Stage with Basic Reporting in a Mircom system

Set DIP switch SW2-1 to SW2-4 as: 0-0-1-0

OFF-OFF-ON-OFF

To configure the INX for Single Stage with Basic Reporting in a Secutron system

Set DIP switch SW2-1 to SW2-4 as: 0-1-1-0

OFF-ON-ON-OFF

To configure NAC 5 as a Continuous Power Supply

Set DIP switch SW4-7 and SW4-8 as: 1-0

ON-OFF

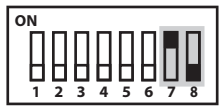


Table 16 Assigning Addresses - Two Stage Application, 1 Power Supply Output

Function	Address	Recommended Address
Common Trouble	Base Address	190
Signal Silence	Base Address + 1	191
Activate NAC1, return NAC1 line status	Base Address + 2	192
Activate NAC2, return NAC2 line status	Base Address + 3	193
Activate NAC3, return NAC3 line status	Base Address + 4	194
Activate NAC4, return NAC4 line status	Base Address + 5	195
Second Stage NAC1	Base Address + 6	196

Table 16 Assigning Addresses - Two Stage Application, 1 Power Supply Output (Continued)

Function	Address	Recommended Address
Second Stage NAC2	Base Address + 7	197
Second Stage NAC3	Base Address + 8	198
Second Stage NAC4	Base Address + 9	199

Notes: Mircom recommends always using the upper range of addresses available for the INX-10A.

Troubles occurring on a NAC circuit are only reported via the first stage address.

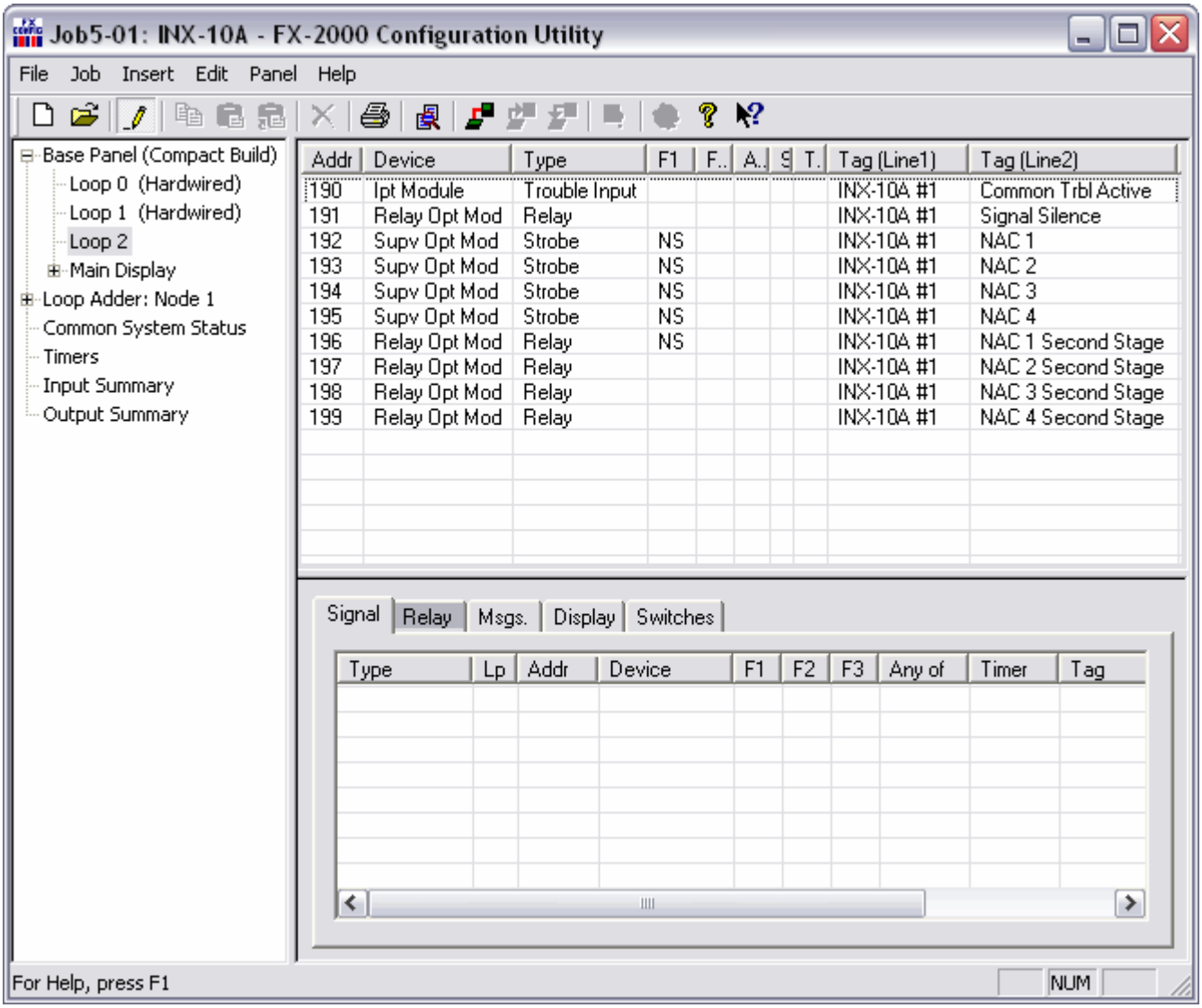


Figure 24 FX-2000 Configurator Settings - INX-10A Two Stage with Power Supply Output

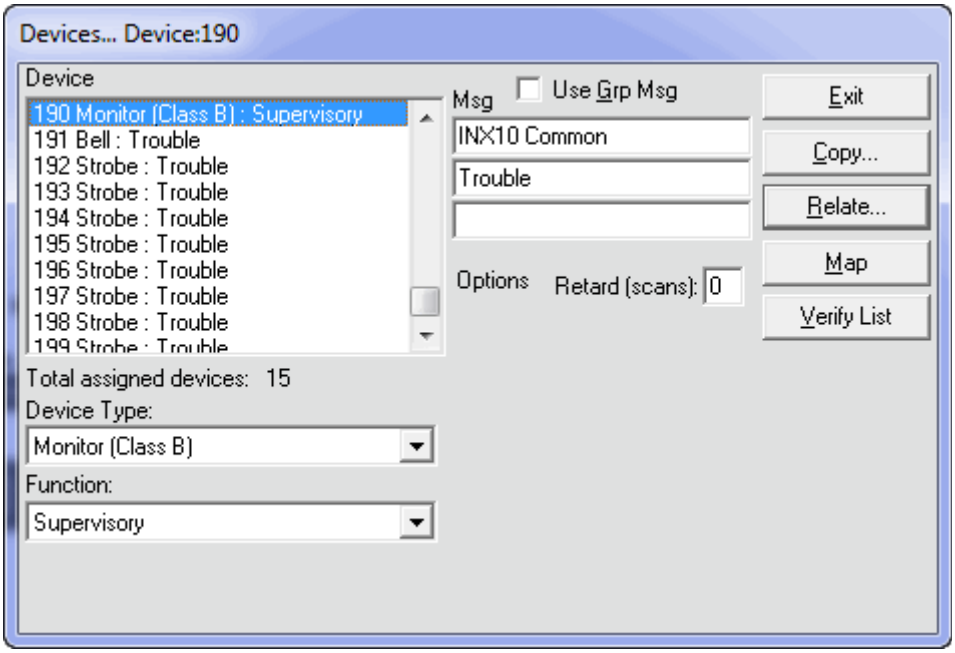


Figure 25 Secutron Configurator Settings - INX-10A Two Stage with Power Supply Output

6.4.4 Two Stage Address Assignment with Enhanced Trouble Reporting and Power Supply Addressing

In order to maximize the amount of addresses available, if a NAC circuit is configured as a Power Supply, the next configured NAC Circuit is assigned the address reserved for the previous Circuit.

Attention: Two Stage Enhanced reporting is mandatory to meet ULC requirements.

Example Application

- NAC 5 configured as a Power Supply.
- INX-10A Common Trouble reporting address is 194.

To configure the recommended base address

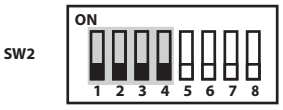
Set DIP switch SW1 as: 1-1-1-0-1-0-1-0

ON-OFF-ON-OFF-ON-OFF-ON-OFF

To configure the INX for Two Stage with Enhanced Trouble Reporting in a Mircom System

Set DIP switch SW2-1 to SW2-4 as: 0-0-0-0

OFF-OFF-OFF-OFF



To configure the INX for Two Stage with Enhanced Trouble Reporting in a Secutron System

Set DIP switch SW2-1 to SW2-4 as: 0-1-0-1

OFF-ON-OFF-ON

To configure NAC 5 as a Continuous Power Supply

Set DIP switch SW4-7 and SW4-8 as: 1-0

ON-OFF

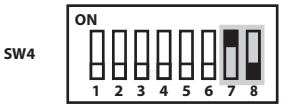


Table 17 Configuring Two Stage Address Assignment with Enhanced Trouble Reporting and Power Supply Addressing

Function	Address	Recommended Address
Common Trouble	Base Address	187
Signal Silence	Base Address + 1	188
Monitor AC trouble	Base Address + 2	189
Monitor Battery/Charger trouble	Base Address + 3	190
Monitor Earth Ground Fault	Base Address + 4	191
Activate NAC1, return NAC1 line status	Base Address + 5	192
Activate NAC2, return NAC2 line status	Base Address + 6	193
Activate NAC3, return NAC3 line status	Base Address + 7	194
Activate NAC4, return NAC4 line status	Base Address + 8	195
Second Stage NAC1	Base Address + 10	196
Second Stage NAC2	Base Address + 11	197
Second Stage NAC3	Base Address + 12	198
Second Stage NAC4	Base Address + 13	199

Notes: Mircom recommends always using the upper range of addresses available for the INX-10A.

Troubles occurring on a NAC circuit are only reported via the first stage address.

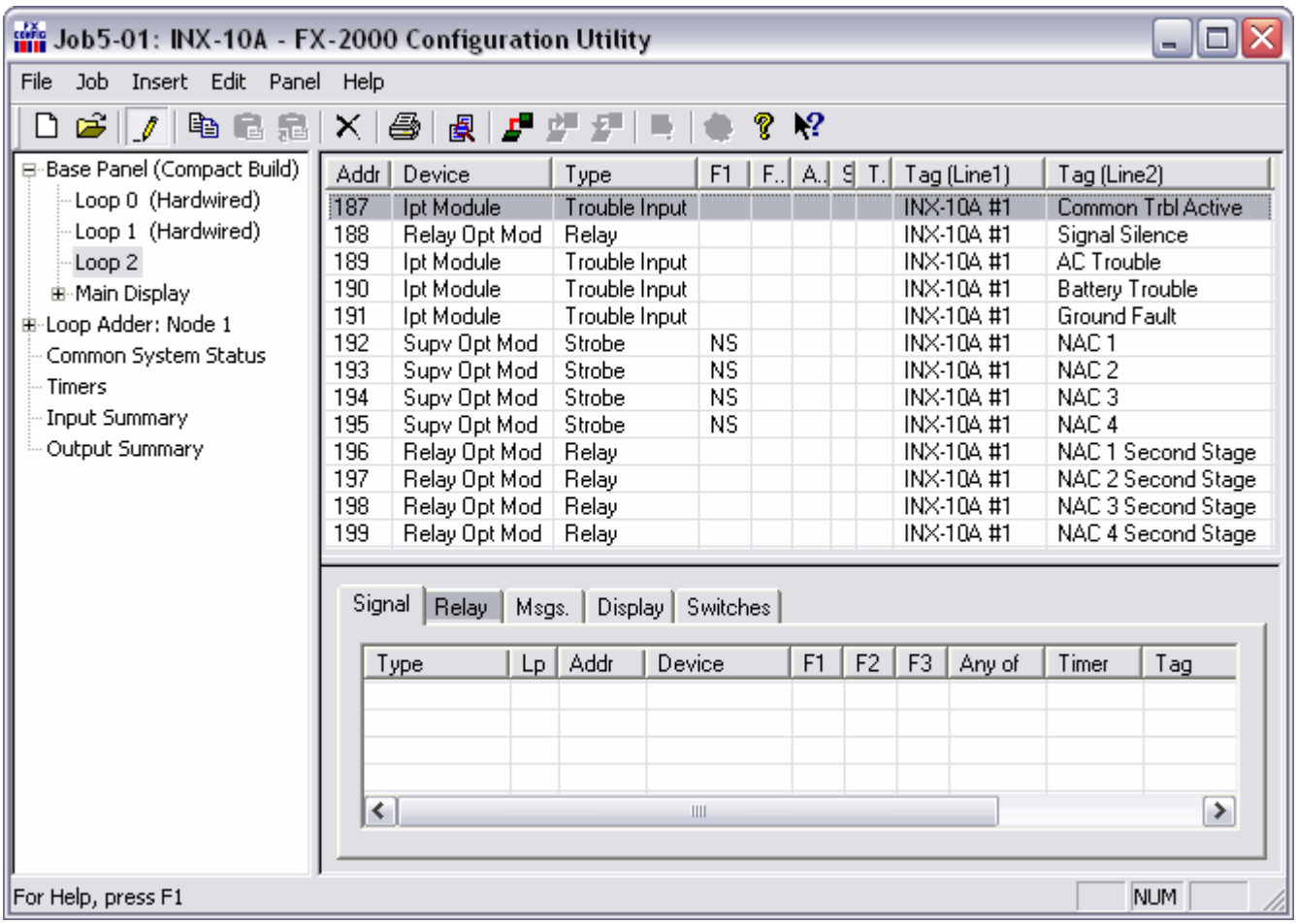


Figure 26 FX-2000 Configurator Settings - INX-10A Two Stage with Enhanced Reporting and Power Supply Addressing

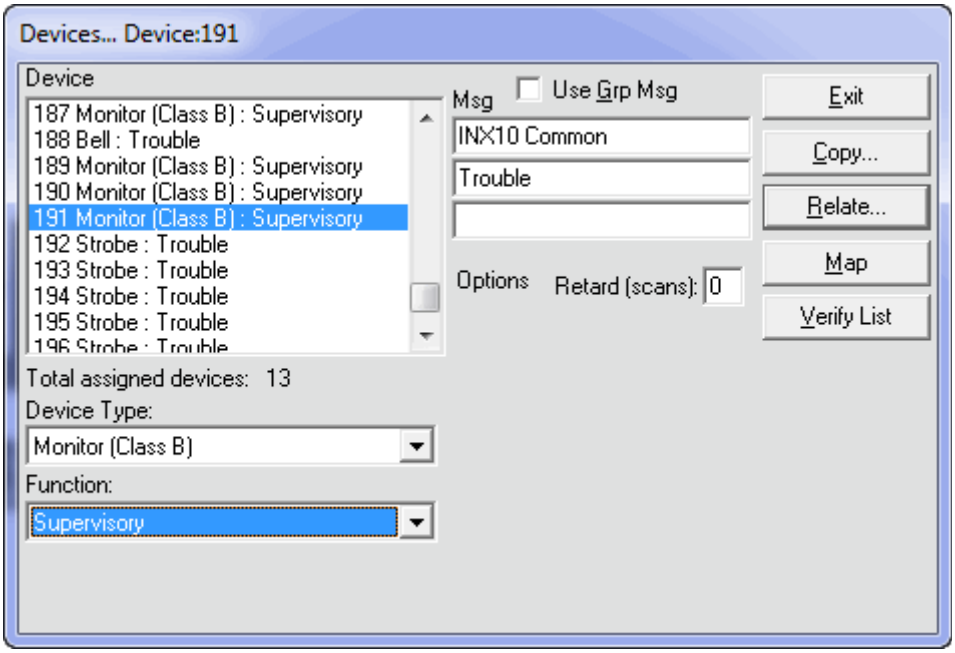


Figure 27 Secutron Configurator Settings - INX-10A Two Stage with Enhanced Reporting and Power Supply Addressing

6.4.5 Adding Functions in the FX-2000 Configurator Software

1. Open Job in Configurator.
2. Select the appropriate loop.
3. Click **INSERT > ADD DEVICE.**
4. From the Add Devices window, use the drop down menus to select the type of virtual device **Supv Opt Mod**, the base address of the INX panel. how many NAC circuits are being supervised.
5. Click **ADD > CLOSE** to return to the main window.

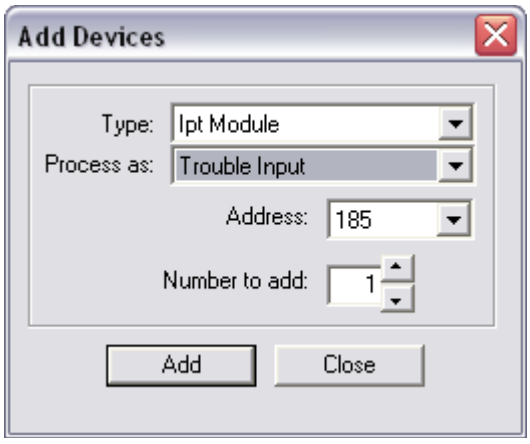


Figure 28 Add Devices Window

6. Add the appropriate TAG(s) to the new devices by double clicking the appropriate cell.
7. To assign correlations to each virtual device right click the device and select **ADD CORRELATIONS** and then select the appropriate items to **ADD**.

6.5 Independent Mode Configuration Options

NAC circuits on the INX-10A can be configured to drive both Signals and Strobes.

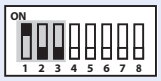
6.5.1 NACs 1 and 2 Configured as Signals

To configure NAC1 and NAC2 to drive signals set SW3-7 to 0 (OFF).

Configure the Strobe Manufacturer and Signal Rate by setting SW4-4, SW4-5, SW4-6, SW5-1 SW5-2 and SW5-3 as described in Table 18.

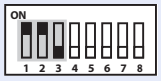
Notes: Using Independent Mode in a Two Stage Application

When driving Signals and Strobes in a Two Stage Application configure the Alert Rate by setting SW4-1, SW4-2 and SW4-3 as follows:



100 - Uses Strobe Manufacturer Sync Rate

010 - Continuous



110 - 0.5s ON, 2.5s OFF, Repeat (20 PPM as in FA-1000 or FX-2000)

001 - 20 PPM, 50% Duty Cycle

Table 18 Independent Mode DIP Switch Settings - NAC1 and NAC2 configured as Signals

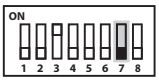
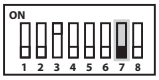
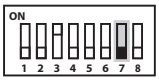
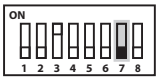
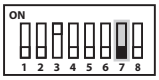
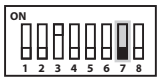
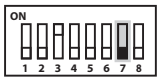
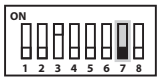
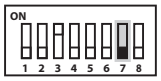
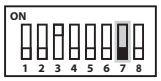
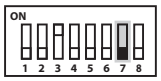
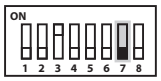
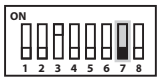
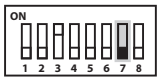
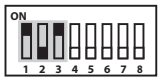
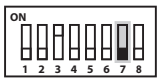
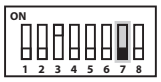
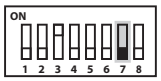
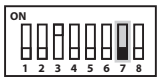
NAC3 NAC4 and NAC5	NAC1 and NAC2	CONFIGURE SWITCHES AS SHOWN		
Strobe Manufacturer (SW5 1-3)	**Signal Rate (SW4 4-6)**	**SW3**	**SW4**	**SW5**
Mircom/Amseco	Continuous			
Mircom/Amseco	Temporal			
Mircom/Amseco	March Time			
Mircom/Amseco	California			
Mircom/Amseco	120 PPM, 50% Duty Cycle			
System Sensor	Continuous			

Table 18 Independent Mode DIP Switch Settings - NAC1 and NAC2 configured as Signals (Continued)

NAC3 NAC4 and NAC5	NAC1 and NAC2	CONFIGURE SWITCHES AS SHOWN		
Strobe Manufacturer (SW5 1-3)	Signal Rate (SW4 4-6)	SW3	SW4	SW5
System Sensor	Temporal			
System Sensor	March Time			
System Sensor	California			
System Sensor	120 PPM, 50% Duty Cycle			
Secutron/Gentex	Continuous			
Secutron/Gentex	Temporal			
Secutron/Gentex	March Time			
Secutron/Gentex	California			
Secutron/Gentex	120 PPM, 50% Duty Cycle			
Wheelock	Continuous			
Wheelock	Temporal			
Wheelock	March Time			
Wheelock	California			
Wheelock	120 PPM, 50% Duty Cycle			

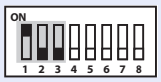
6.5.2 NAC1, NAC2 and NAC3 Configured as Signals

To configure NAC1, NAC2 and NAC3 to drive signals set SW3-7 to 1 (ON).

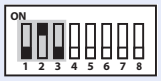
Configure the Strobe Manufacturer and Signal Rate by setting SW4-4, SW4-5, SW4-6, SW5-1 SW5-2 and SW5-3 as described in Table 19.

Notes: Using Independent Mode in a Two Stage Application

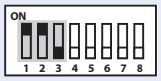
When driving Signals and Strobes in a Two Stage Application configure the Alert Rate by setting SW4-1, SW4-2 and SW4-3 as follows:



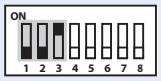
100 - Uses Strobe Manufacturer Sync Rate



010 - Continuous



110 - 0.5s ON, 2.5s OFF, Repeat (20 PPM as in FA-1000 or FX-2000)



001 - 20 PPM, 50% Duty Cycle

Table 19 Independent Mode DIP Switch Settings - NAC1, NAC2 and NAC3 configured as Signals

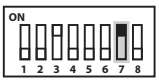
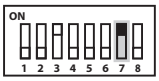
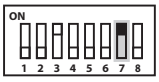
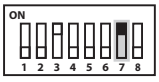
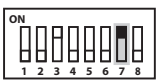
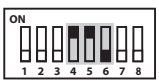
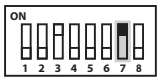
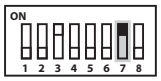
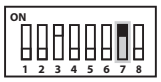
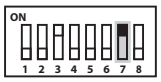
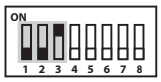
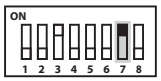
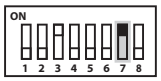
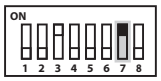
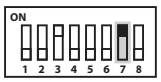
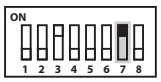
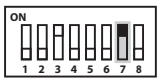
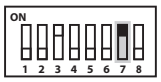
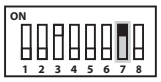
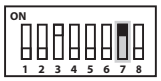
NAC4 and NAC5	NAC1, NAC2 and NAC3	CONFIGURE SWITCHES AS SHOWN		
Strobe Manufacturer (SW5 1-3)	**Signal Rate (SW4 4-6)**	**SW3**	**SW4**	**SW5**
Mircom/Amseco	Continuous			
Mircom/Amseco	Temporal			
Mircom/Amseco	March Time			
Mircom/Amseco	California			
Mircom/Amseco	120 PPM, 50% Duty Cycle			
System Sensor	Continuous			
System Sensor	Temporal			

Table 19 Independent Mode DIP Switch Settings - NAC1, NAC2 and NAC3 configured as Signals (Continued)

NAC4 and NAC5	NAC1, NAC2 and NAC3	CONFIGURE SWITCHES AS SHOWN		
Strobe Manufacturer (SW5 1-3)	**Signal Rate (SW4 4-6)**	**SW3**	**SW4**	**SW5**
System Sensor	March Time			
System Sensor	California			
System Sensor	120 PPM, 50% Duty Cycle			
Secutron/Gentex	Continuous			
Secutron/Gentex	Temporal			
Secutron/Gentex	March Time			
Secutron/Gentex	California			
Secutron/Gentex	120 PPM, 50% Duty Cycle			
Wheelock	Continuous			
Wheelock	Temporal			
Wheelock	March Time			
Wheelock	California			
Wheelock	120 PPM, 50% Duty Cycle			

7.0 Wiring

This chapter describes the proper field wiring for the INX-10A.

This chapter explains

- Maximum wiring distances
- Wiring Terminal Connections
- Wiring Power Supply Connections

7.1 Wiring Tables

Table 20 Wiring Table for Input Circuits

Wire Gauge	Maximum Wiring Run to Last Device (ELR)	
(AWG)	ft	m
22	2990	910
20	4760	1450
18	7560	2300
16	12000	3600
14	19000	5800
12	30400	9200

Note: Maximum Loop Resistance Should Not Exceed 100 Ohms.

Table 21 Wiring Table for NAC and Auxiliary Power Circuits

TOTAL SIGNAL LOAD	MAXIMUM WIRING RUN TO LAST DEVICE (ELR)								MAX. LOOP RESISTANCE
	18AWG		16AWG		14AWG		12AWG		
Amperes	ft	m	ft	m	ft	m	ft	m	Ohms
0.06	2350	716	3750	1143	6000	1829	8500	2591	30
0.12	1180	360	1850	567	3000	915	4250	1296	15
0.30	470	143	750	229	1200	366	1900	579	6
0.60	235	71	375	114	600	183	850	259	3
0.90	156	47	250	76	400	122	570	174	2
1.20	118	36	185	56	300	91	425	129	1.5
1.50	94	29	150	46	240	73	343	105	1.2
1.70	78	24	125	38	200	61	285	87	1.0

Notes: Main Board NAC Circuits are rated for 2.5 Amperes each.

Maximum Voltage Drop Should Not Exceed 1.8 Volts

7.2 Main Board Terminal Connections

Wire devices to terminals as shown below. See 7.1 Wiring Tables on page 67, Table 21 Wiring Table for NAC and Auxiliary Power Circuits on page 67 and 9.0 Appendix A - Specifications And Features - for more information.

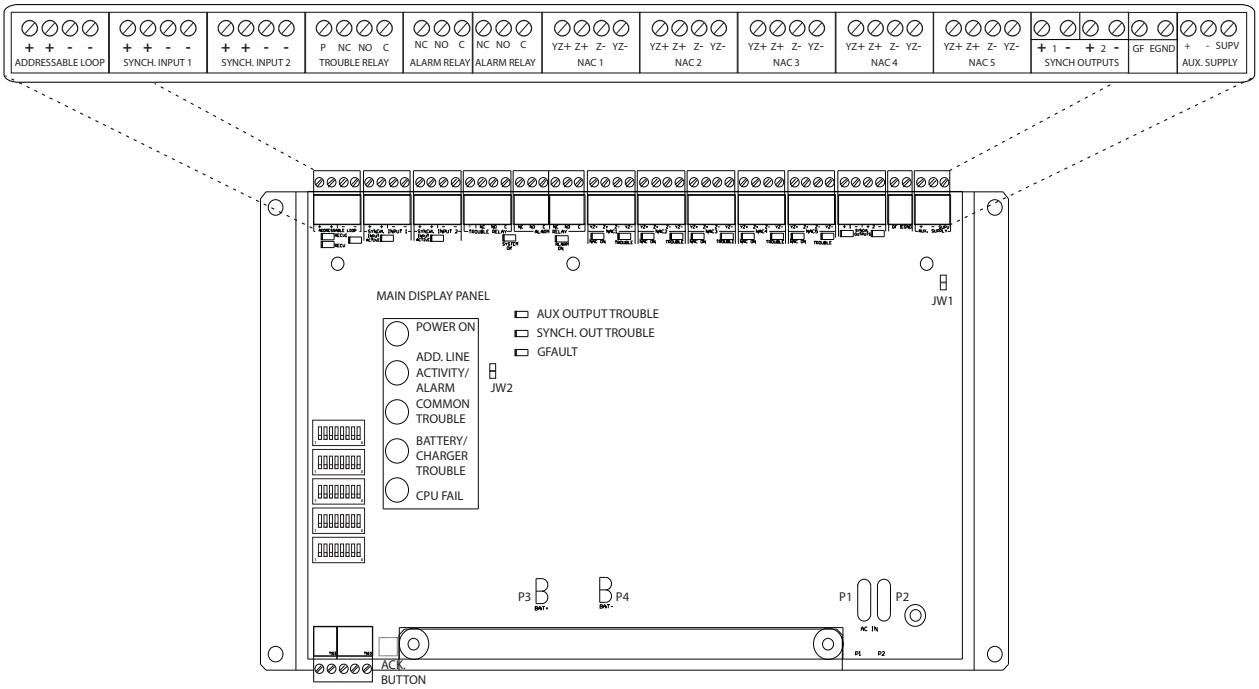


Figure 29 Main Board Terminal Blocks

Attention: DO NOT exceed power supply ratings: Total current including Main Chassis, AUX, and NAC circuits is 10A max.

Ground Fault Detection is required at all times. INX Ground fault detection can only be disabled IF it is interfering the FACPs Ground Fault Detection operation AND the FACP is used to manage the Ground Fault Detection.

Notes: The Terminal Blocks are depluggable for ease of wiring.

All power limited circuits must use type FPL, FPLR, or FPLP power limited cable.

7.2.1 SLC Loop Wiring - Class B

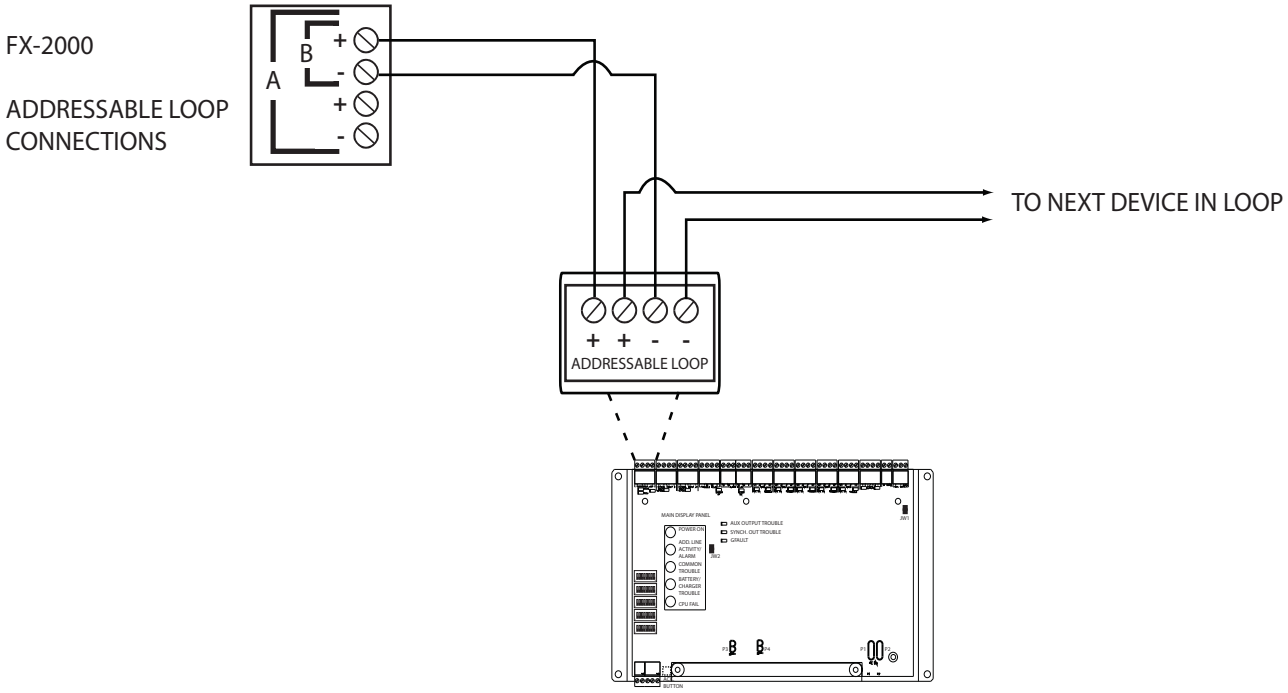


Figure 30 SLC Loop Wiring - Class B

7.2.2 SLC Loop Wiring - Class A

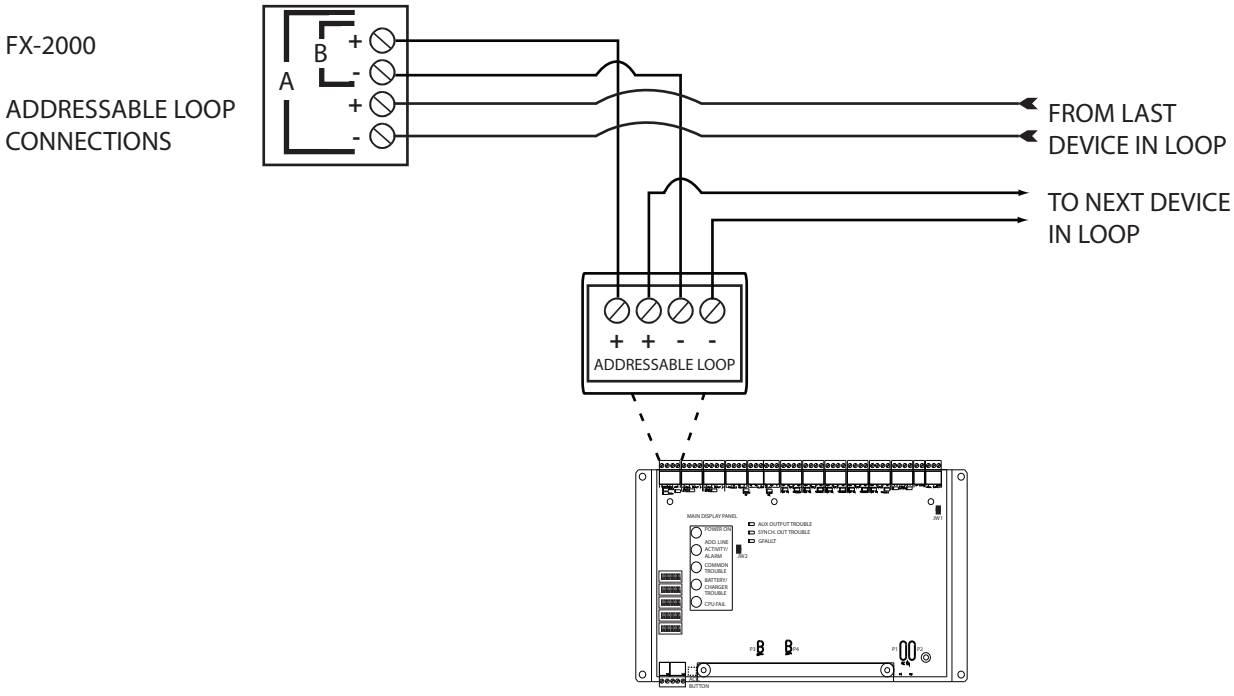


Figure 31 SLC Loop Wiring - Class A

7.2.3 Synchronized Input from FACP Wiring - Class B

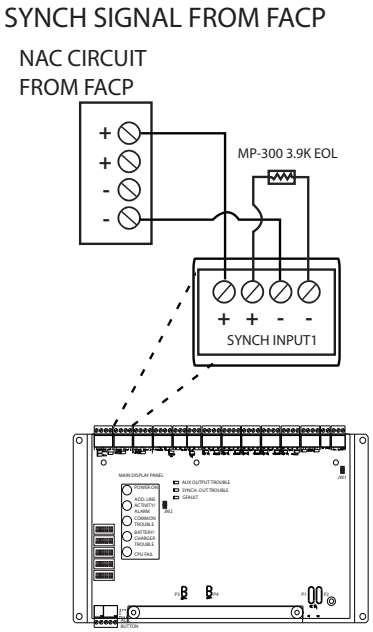


Figure 32 Synchronized Input from FACP Wiring - Class B

Attention: DO NOT USE AN SLC LOOP IN THIS APPLICATION.

7.2.4 Synchronized Input from FACP Wiring- Class A

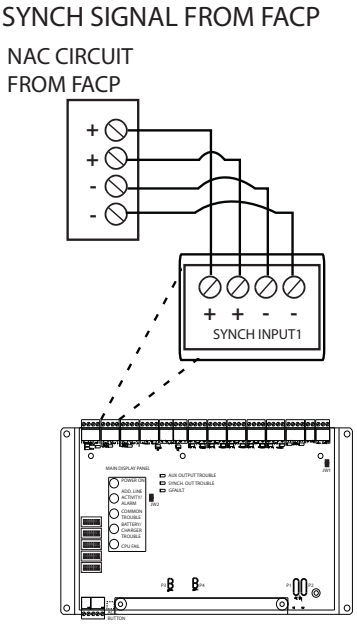


Figure 33 Synchronized Input from FACP Wiring - Class A

Attention: DO NOT USE AN SLC LOOP IN THIS APPLICATION.

7.2.5 Synchronized Input from INX-10A Wiring - Class B Single Slave

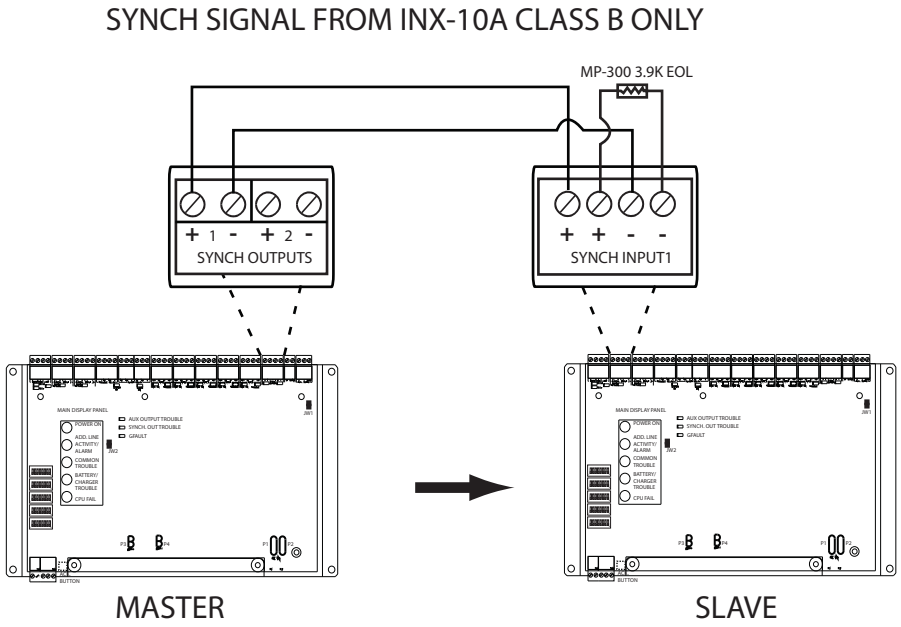


Figure 34 Synchronized Input from INX-10A Wiring - Class B Single Slave

Attention: CLASS B WIRING ONLY

7.2.6 Synchronized Input from INX-10A SIngle Stage Wiring - Class B Multiple Slaves

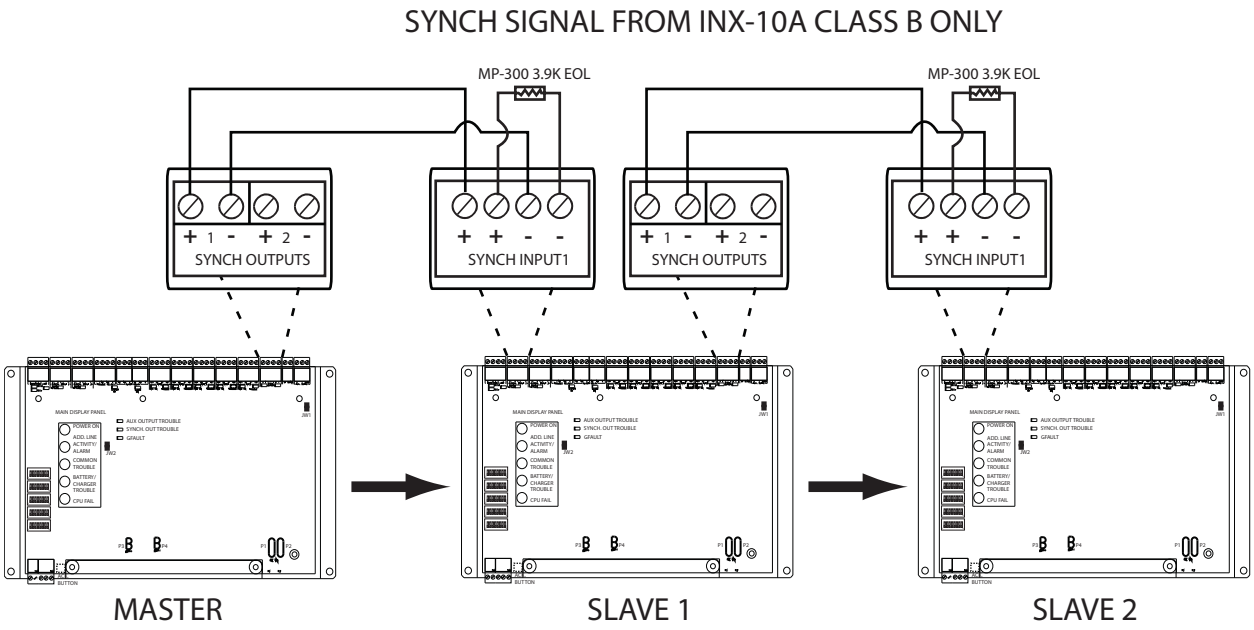


Figure 35 Synchronized Input from INX-10A Wiring - Class B Multiple Slaves

Attention: SYCNHRONIZING SIGNALS FROM THE INX-10A CAN USE CLASS B WIRING ONLY

MIRCOM RECOMMENDED SETUP FOR MULTIPLE SLAVES

7.2.7 Synchronized Input from INX-10A Two Stage Wiring - Class B Multiple Slaves

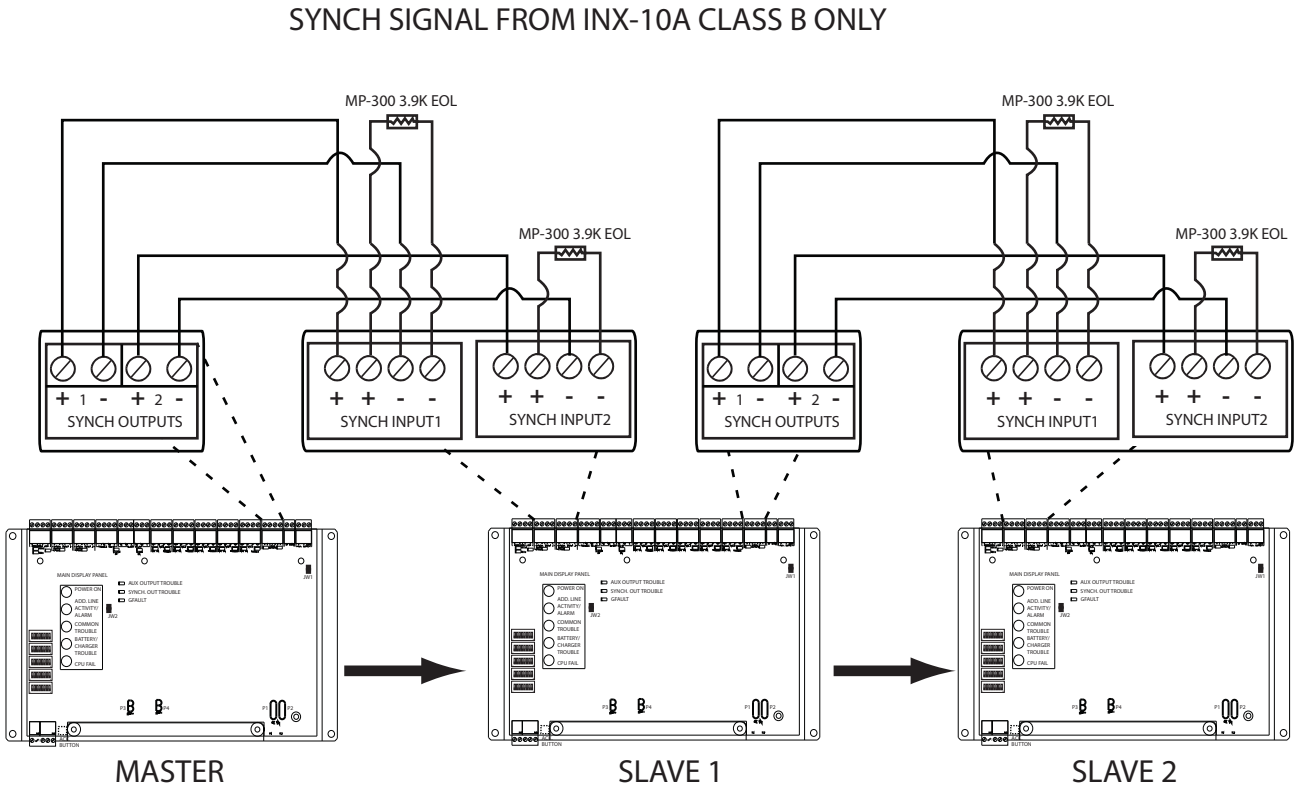


Figure 36 Synchronized Input from INX-10A Wiring - Class B Multiple Slaves

Attention: SYCNHRONIZING SIGNALS FROM THE INX-10A CAN USE CLASS B WIRING ONLY

MIRCOM RECOMMENDED SETUP FOR MULTIPLE SLAVES

7.2.8 Relay, Ground Supervision and Auxiliary Supply Wiring

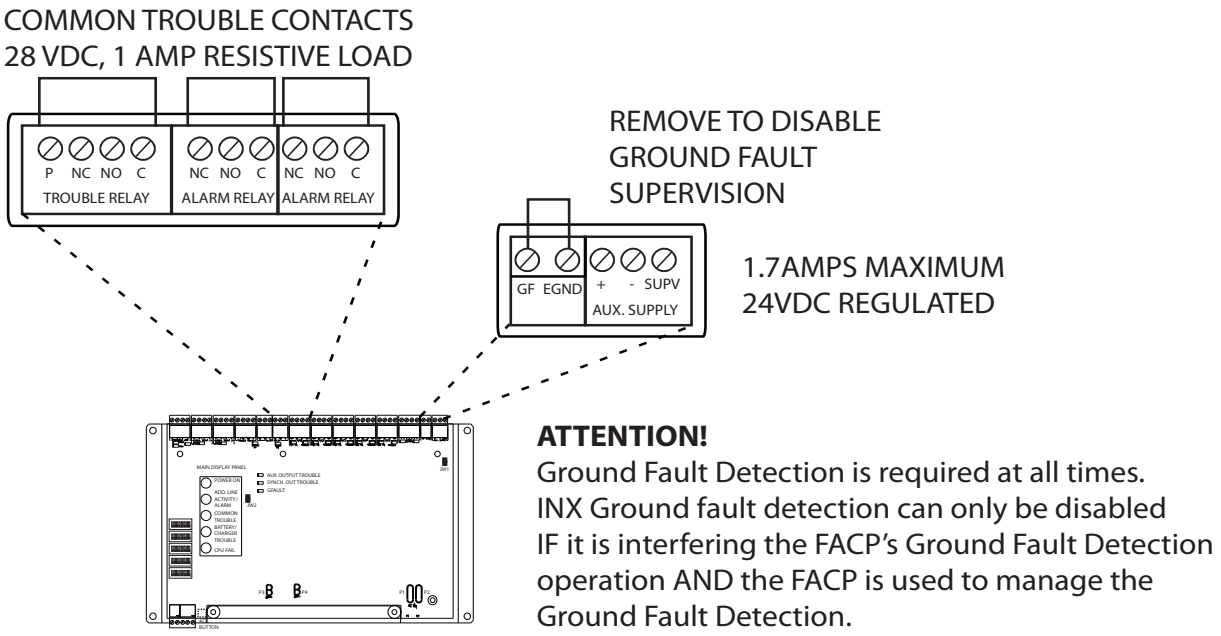


Figure 37 Relay, Ground Supervision and Auxiliary Supply Wiring

7.2.9 Supervision of Auxiliary Supply Wiring

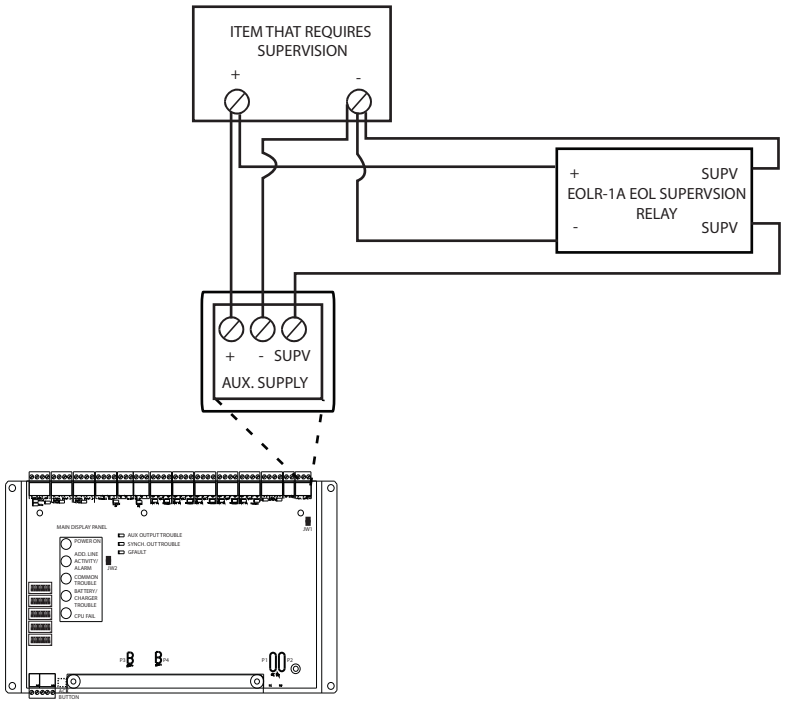


Figure 38 Relay, Ground Supervision and Auxiliary Supply Wiring

7.2.10 NAC CIrcuit Wiring - Class B

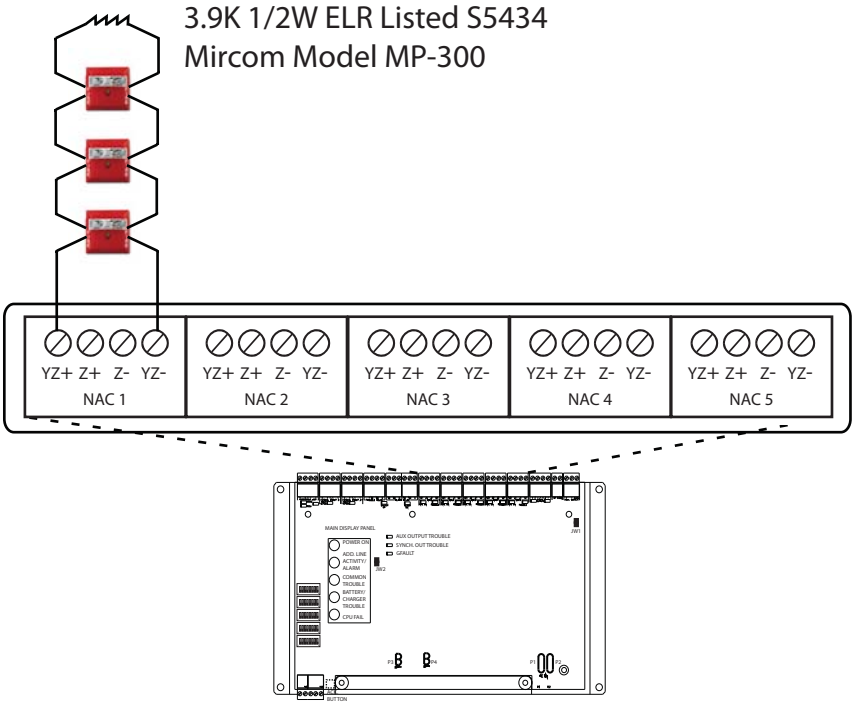


Figure 39 NAC CIrcuit Wiring - Class B

7.2.11 NAC CIrcuit Wiring - Class A

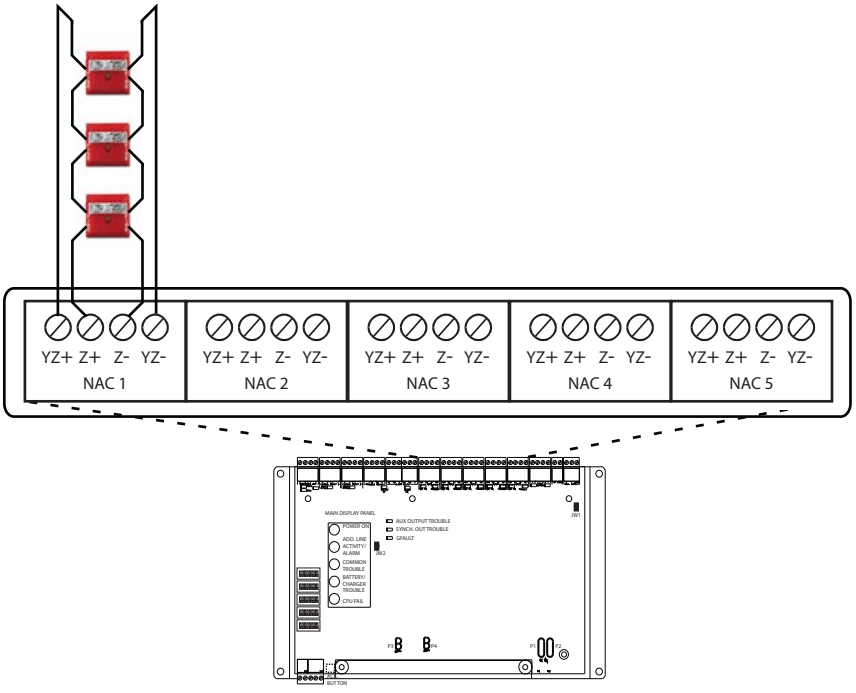


Figure 40 NAC CIrcuit Wiring - Class A

7.3 Power Supply Connections

The power supply is pre-installed as part of the Main Chassis. The following table displays the electrical ratings. Figure 41 Power Supply Connections shows the proper connections to wire the Power Supply successfully.

Table 22 Power Supply Electrical Ratings

Connector/Jumper	Description
Electrical input ratings	120 VAC, 60 Hz, 2 A / 240 VAC, 50 Hz, 1A
Power supply total current	10 A maximum
Battery Fuse	Replace with WX-058 Battery Cable Assembly

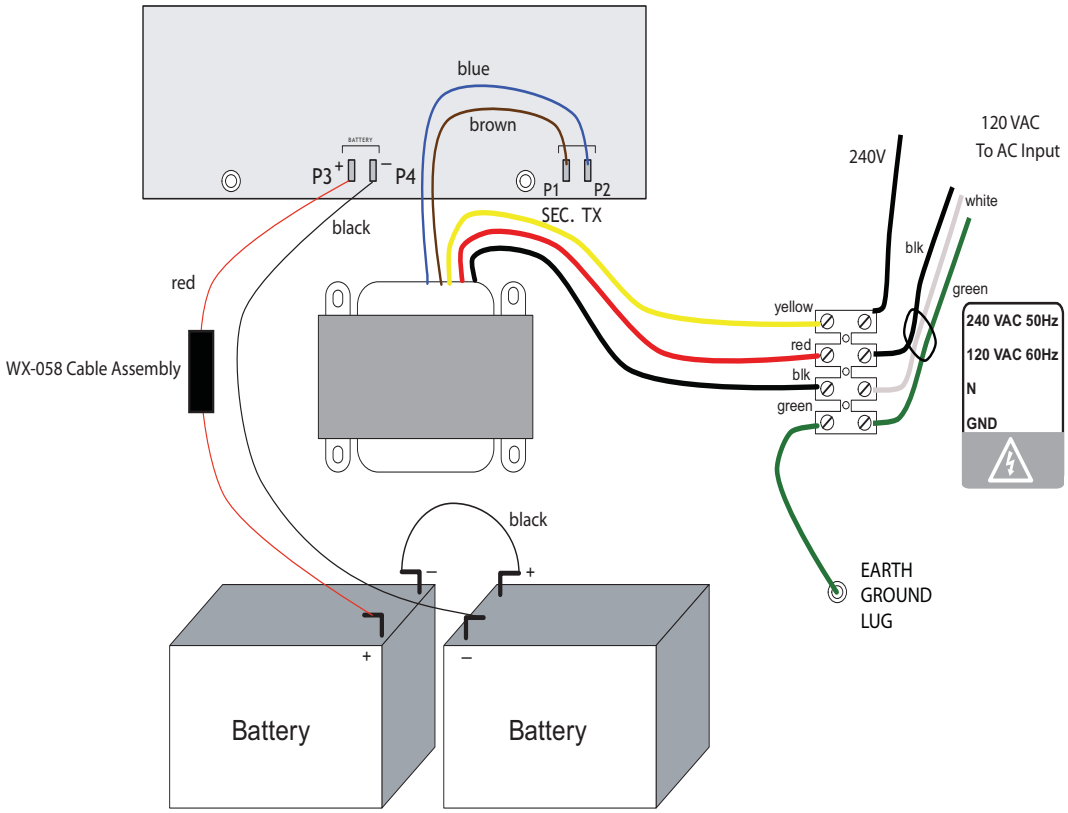


Figure 41 Power Supply Connections

Attention: DO NOT exceed power supply ratings. Wire as shown using proper wire gauges.
Connect batteries after the system main A.C. power is turned on to reduce sparking.

7.4 System Checkout

The following are the recommended steps before and during the powering up of the INX-10A.

7.4.1 Before Turning The Power ON

1. To prevent sparking, DO NOT connect the batteries first. Connecting the batteries is only to be done after the system has been powered from the main AC Supply.
2. Check all field (external) wiring for opens, shorts, and ground.
3. Check that all interconnection cables are secure, and that all connectors are plugged-in properly.
4. Check all Jumpers and Switches for proper setting.
5. Check the AC power wiring for proper connection.
6. Check that the chassis is connected to EARTH GROUND (cold water pipe).
7. Close the front cover plate before powering the system from main AC supply.

7.4.2 Power-up Procedure

1. After completing 7.4.1 Before Turning The Power ON procedures, power-up the panel. The green **AC-ON** LED should illuminate.
2. Since the batteries are not connected, the **Battery Trouble** LED should illuminate, the **Common Trouble** LED should flash and the Trouble Relay (on the main board) will be active.
3. Connect the batteries while observing correct polarity; the red wire is positive (+) and black wire is negative (-).
4. All indicators should extinguish except for normal power **AC-ON** green LED.

7.5 Troubleshooting

The following are common methods to solving Circuit Ground Fault, Battery and Common troubles.

7.5.1 Circuit Trouble

Normally when a circuit trouble occurs, the Common Trouble indicator will be illuminated and the common trouble relay will be active. Additionally, the corresponding LED on the main board will be illuminated. This can be viewed by opening the panel and looking the top of the board. To correct the fault, check for open wiring on that particular circuit loop.

7.5.2 Ground Fault

This panel has a common ground fault detector. To correct the fault, check for any external wiring touching the chassis or other Earth Ground connection.

7.5.3 Battery Trouble

Check for the presence of batteries and their conditions. Low voltage (below 20.4V) will cause a battery trouble. If battery trouble condition persists, replace batteries as soon as possible.

7.5.4 Common Trouble

If only a common trouble is indicated on the main panel and none of those above confirming trouble indicators are on, then check the following for possible fault

- any missing interconnection wiring
- improperly secured cabling

8.0 Warranty and Warning Information

8.1 Warning Please Read Carefully

Note: This equipment is subject to terms and conditions of sale as follows:

8.2 Note to Installers

This warning contains vital information. As the only individual in contact with system users, it is your responsibility to bring each item in this warning to the attention of the users of this system. Failure to properly inform system end-users of the circumstances in which the system might fail may result in over-reliance upon the system. As a result, it is imperative that you properly inform each customer for whom you install the system of the possible forms of failure.

8.3 System Failures

This system has been carefully designed to be as effective as possible. There are circumstances, such as fire or other types of emergencies where it may not provide protection. Alarm systems of any type may be compromised deliberately or may fail to operate as expected for a variety of reasons. Some reasons for system failure include:

8.3.1 Inadequate Installation

A Fire Alarm system must be installed in accordance with all the applicable codes and standards in order to provide adequate protection. An inspection and approval of the initial installation, or, after any changes to the system, must be conducted by the Local Authority Having Jurisdiction. Such inspections ensure installation has been carried out properly.

8.3.2 Power Failure

Control units, smoke detectors and many other connected devices require an adequate power supply for proper operation. If the system or any device connected to the system operates from batteries, it is possible for the batteries to fail. Even if the batteries have not failed, they must be fully charged, in good condition and installed correctly. If a device operates only by AC power, any interruption, however brief, will render that device inoperative while it does not have power. Power interruptions of any length are often accompanied by voltage fluctuations which may damage electronic equipment such as a fire alarm system. After a power interruption has occurred, immediately conduct a complete system test to ensure that the system operates as intended.

8.3.3 Failure of Replaceable Batteries

Systems with wireless transmitters have been designed to provide several years of battery life under normal conditions. The expected battery life is a function of the device environment, usage and type. Ambient conditions such as high humidity, high or low temperatures, or large temperature fluctuations may reduce the expected battery life. While each transmitting device has a low battery monitor which identifies when the batteries need to be replaced, this monitor

may fail to operate as expected. Regular testing and maintenance will keep the system in good operating condition.

8.3.4 Compromise of Radio Frequency (Wireless) Devices

Signals may not reach the receiver under all circumstances which could include metal objects placed on or near the radio path or deliberate jamming or other inadvertent radio signal interference.

8.3.5 System Users

A user may not be able to operate a panic or emergency switch possibly due to permanent or temporary physical disability, inability to reach the device in time, or unfamiliarity with the correct operation. It is important that all system users be trained in the correct operation of the alarm system and that they know how to respond when the system indicates an alarm.

8.3.6 Automatic Alarm Initiating Devices

Smoke detectors, heat detectors and other alarm initiating devices that are a part of this system may not properly detect a fire condition or signal the control panel to alert occupants of a fire condition for a number of reasons, such as: the smoke detectors or heat detector may have been improperly installed or positioned; smoke or heat may not be able to reach the alarm initiating device, such as when the fire is in a chimney, walls or roofs, or on the other side of closed doors; and, smoke and heat detectors may not detect smoke or heat from fires on another level of the residence or building.

8.3.7 Software

Most Mircom products contain software. With respect to those products, Mircom does not warranty that the operation of the software will be uninterrupted or error-free or that the software will meet any other standard of performance, or that the functions or performance of the software will meet the user's requirements. Mircom shall not be liable for any delays, breakdowns, interruptions, loss, destruction, alteration or other problems in the use of a product arising our of, or caused by, the software.

Every fire is different in the amount and rate at which smoke and heat are generated. Smoke detectors cannot sense all types of fires equally well. Smoke detectors may not provide timely warning of fires caused by carelessness or safety hazards such as smoking in bed, violent explosions, escaping gas, improper storage of flammable materials, overloaded electrical circuits, children playing with matches or arson.

Even if the smoke detector or heat detector operates as intended, there may be circumstances when there is insufficient warning to allow all occupants to escape in time to avoid injury or death.

8.3.8 Alarm Notification Appliances

Alarm Notification Appliances such as sirens, bells, horns, or strobes may not warn people or waken someone sleeping if there is an intervening wall or door. If notification appliances are located on a different level of the residence or premise, then it is less likely that the occupants will be alerted or awakened. Audible notification appliances may be interfered with by other noise sources such as stereos, radios, televisions, air conditioners or other appliances, or passing traffic. Audible notification appliances, however loud, may not be heard by a hearing-impaired person.

8.3.9 Telephone Lines

If telephone lines are used to transmit alarms, they may be out of service or busy for certain periods of time. Also the telephone lines may be compromised by such things as criminal tampering, local construction, storms or earthquakes.

8.3.10 Insufficient Time

There may be circumstances when the system will operate as intended, yet the occupants will not be protected from the emergency due to their inability to respond to the warnings in a timely manner. If the system is monitored, the response may not occur in time enough to protect the occupants or their belongings.

8.3.11 Component Failure

Although every effort has been made to make this system as reliable as possible, the system may fail to function as intended due to the failure of a component.

8.3.12 Inadequate Testing

Most problems that would prevent an alarm system from operating as intended can be discovered by regular testing and maintenance. The complete system should be tested as required by national standards and the Local Authority Having Jurisdiction and immediately after a fire, storm, earthquake, accident, or any kind of construction activity inside or outside the premises. The testing should include all sensing devices, keypads, consoles, alarm indicating devices and any other operational devices that are part of the system.

8.3.13 Security and Insurance

Regardless of its capabilities, an alarm system is not a substitute for property or life insurance. An alarm system also is not a substitute for property owners, renters, or other occupants to act prudently to prevent or minimize the harmful effects of an emergency situation.

IMPORTANT NOTE: End-users of the system must take care to ensure that the system, batteries, telephone lines, etc. are tested and examined on a regular basis to ensure the minimization of system failure.

8.4 Limited Warranty

Mircom Technologies Ltd. together with its subsidiaries and affiliates (collectively, the “Mircom Group of Companies”) warrants the original purchaser that for a period of three years from the date of shipment, the product shall be free of defects in materials and workmanship under normal use. During the warranty period, Mircom shall, at its option, repair or replace any defective product upon return of the product to its factory, at no charge for labor and materials. Any replacement and/or repaired parts are warranted for the remainder of the original warranty or ninety (90) days, whichever is longer. The original owner must promptly notify Mircom in writing that there is defect in material or workmanship, such written notice to be received in all events prior to expiration of the warranty period.

8.4.1 International Warranty

The warranty for international customers is the same as for any customer within Canada and the United States, with the exception that Mircom shall not be responsible for any customs fees, taxes, or VAT that may be due.

8.4.2 Conditions to Void Warranty

This warranty applies only to defects in parts and workmanship relating to normal use. It does not cover:

- damage incurred in shipping or handling;
- damage caused by disaster such as fire, flood, wind, earthquake or lightning;
- damage due to causes beyond the control of Mircom such as excessive voltage, mechanical shock or water damage;
- damage caused by unauthorized attachment, alterations, modifications or foreign objects;
- damage caused by peripherals (unless such peripherals were supplied by Mircom);
- defects caused by failure to provide a suitable installation environment for the products;
- damage caused by use of the products for purposes other than those for which it was designed;
- damage from improper maintenance;
- damage arising out of any other abuse, mishandling or improper application of the products.

8.5 Warranty Procedure

To obtain service under this warranty, please return the item(s) in question to the point of purchase. All authorized distributors and dealers have a warranty program. Anyone returning goods to Mircom must first obtain an authorization number. Mircom will not accept any shipment whatsoever for which prior authorization has not been obtained. NOTE: Unless specific pre-authorization in writing is obtained from Mircom management, no credits will be issued for custom fabricated products or parts or for complete fire alarm system. Mircom will at its sole option, repair or replace parts under warranty. Advance replacements for such items must be purchased.

Note: Mircom's liability for failure to repair the product under this warranty after a reasonable number of attempts will be limited to a replacement of the product, as the exclusive remedy for breach of warranty.

8.6 Disclaimer of Warranties

This warranty contains the entire warranty and shall be in lieu of any and all other warranties, whether expressed or implied (including all implied warranties of merchantability or fitness for a particular purpose) And of all other obligations or liabilities on the part of Mircom neither assumes nor authorizes any other person purporting to act on its behalf to modify or to change this warranty, nor to assume for it any other warranty or liability concerning this product.

This disclaimer of warranties and limited warranty are governed by the laws of the province of Ontario, Canada.

8.7 Out of Warranty Repairs

Mircom will at its option repair or replace out-of-warranty products which are returned to its factory according to the following conditions. Anyone returning goods to Mircom must first

obtain an authorization number. Mircom will not accept any shipment whatsoever for which prior authorization has not been obtained.

Products which Mircom determines to be repairable will be repaired and returned. A set fee which Mircom has predetermined and which may be revised from time to time, will be charged for each unit repaired.

Products which Mircom determines not to be repairable will be replaced by the nearest equivalent product available at that time. The current market price of the replacement product will be charged for each replacement unit.

The preceding information is accurate as of the date of publishing and is subject to change or revision without prior notice at the sole discretion of the Company.

WARNING: Mircom recommends that the entire system be completely tested on a regular basis. However, despite frequent testing, and due to, but not limited to, criminal tampering or electrical disruption, it is possible for this product to fail to perform as expected.

NOTE: Under no circumstances shall Mircom be liable for any special, incidental, or consequential damages based upon breach of warranty, breach of contract, negligence, strict liability, or any other legal theory. Such damages include, but are not limited to, loss of profits, loss of the product or any associated equipment, cost of capital, cost of substitute or replacement equipment, facilities or services, down time, purchaser's time, the claims of third parties, including customers, and injury to property.

MIRCOM MAKES NO WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE WITH RESPECT TO ITS GOODS DELIVERED, NOR IS THERE ANY OTHER WARRANTY, EXPRESSED OR IMPLIED, EXCEPT FOR THE WARRANTY CONTAINED HEREIN.

9.0 Appendix A - Specifications And Features

Table 23 INX-10A Specifications and Features

INX-10A Main Chassis		
General	Micro-controller based design, fully configurable from DIP Switches on front panel.	
NAC Circuits	5 Style Y or Z (Class B or A) configurable as strobes or audibles. Terminals are labelled “NAC”. Power limited / 24 VDC regulated / 2.5 A @ 49° C per Circuit	
Aux. Power Supply.	Terminals are labelled **AUX PWR**. Power limited / 24 VDC Filtered (special application) / 1.7 A @ 49° C	
Auxiliary relays (resistive loads)	Must be connected to a Listed Power Limited Source of Supply. Terminals are labelled “GROUND” and “TROUBLE”.	
	Ground Fault	Form C, 1 Amp, 28 VDC
	Common Trouble	Form C, 1 Amp, 28 VDC
Electrical ratings	**AC line voltage**	120V 60Hz / 240V, 50Hz 2 Amps / 1 Amp (primary)
	NAC Circuits	24VDC regulated, Power Limited 10A Total, 2.5A maximum per circuit
Battery	**Type**	2 x 12VDC, Gel-Cell/Sealed Lead-Acid
	Charging capability	4Ah to 40Ah batteries
	Current Consumption	standby: 200 mA alarm: 350 mA
Compliance	**System Model**	INX Addressable NAC Expander
	Applicable Standards	ULC S527-99, UL 864 R9 and UL 1481 R5

10.0 Appendix B - Power Supply & Battery Calculations

Use the form below to determine the required Main Chassis and Secondary Power Supply (batteries).

IMPORTANT NOTICE
The main AC branch circuit connection for Fire Alarm Control Unit must provide a dedicated continuous power without provision of any disconnect devices. Use #12 AWG wire with 600-volt insulation and proper over-current circuit protection that complies with the local codes. Refer to9.0 Appendix A - Specifications And Features for specifications.

Power Requirements (All currents are in amperes)							
Model Number	**Description**	**Qty**		**Standby**	**Total Standby**	**Alarm**	**Total Alarm**
INX-10A	Main Chassis (10 Amp)		X	0.200	=	0.350	=
Signal Load (bells, horns, strobes, and etc.)			X				=
Auxiliary Power Supply					=	Alarm	=
Total currents (Add above currents)				STANDBY	(**A**)		(**B**)

Total Current Requirement

ALARM (B)_____ Amps.

Battery Capacity Requirement

([STANDBY (A)_____] X [(24 or 60 Hours)___]) + ([ALARM (B)_____] X [*Alarm in Hr.] _____) = (C)_____AH

Battery Selection

Multiply (C) by 1.20 to derate battery.

Batteries BA-104(4AH), BA-1065(7AH) and BA-110(12AH) will fit into the INX-10A

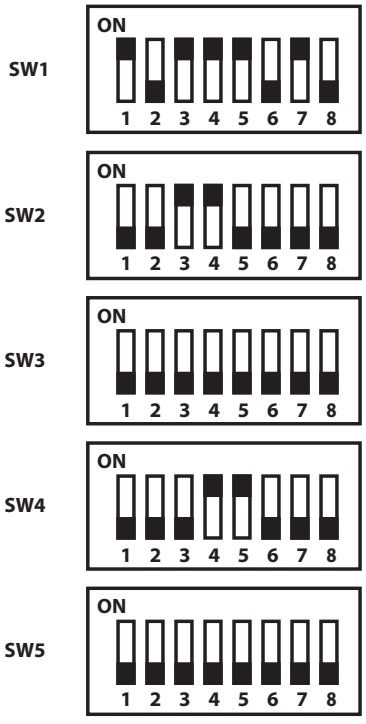
*Use 0.084 for five minutes of alarm or 0.5 for thirty minutes of alarm as a multiplier figure.

11.0 Appendix C - Sample Applications

11.1 Minimal Size Single Stage Addressable System - Factory Default Settings

In a minimal size system the INX-10A will require 7 addresses. The following are the specs for the system.

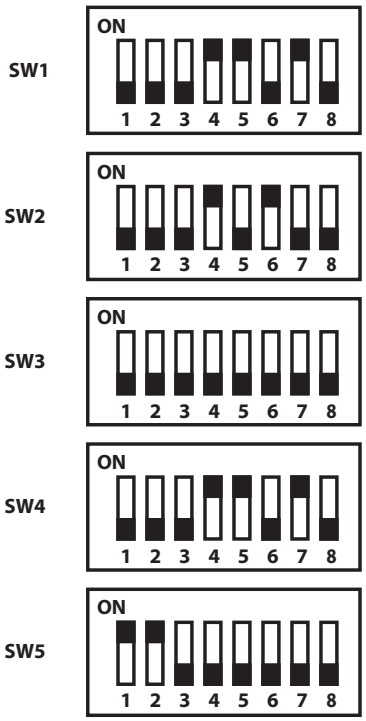
Base Address	193
Protocol	System Sensor
AC Failure Report Delay	No Delay
Charger	Yes
Battery	Yes
Cut Charger when NACs activated	Yes
Alert Rate	N/A
Evacuation Rate	Temporal
Strobe Type	None
NAC 4 Output Settings	NAC
NAC 5 Output Settings	NAC



11.2 Minimal Two Stage Addressable System

In a minimal size system the INX-10A will require 7 addresses. The following are the specs for the system.

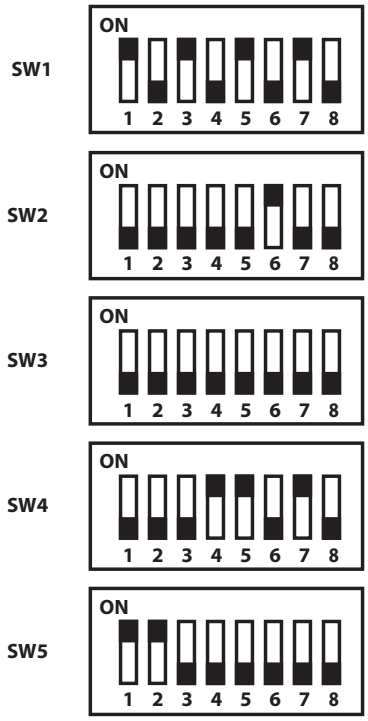
Base Address	188
Protocol	System Sensor
AC Failure Report Delay	2 hour
Charger	Yes
Battery	Yes
Cut Charger when NACs activated	Yes
Alert Rate	Follow Inputs
Evacuation Rate	Temporal
Strobe Type	None
NAC 4 Output Settings	NAC
NAC 5 Output Settings	Continuous Supply



11.3 Minimal ULC Two Stage Addressable System

In a minimal size system the INX-10A will require 7 addresses. The following are the specs for the system.

Base Address	185
Protocol	System Sensor
AC Failure Report Delay	2 hour
Charger	Yes
Battery	Yes
Cut Charger when NACs activated	Yes
Alert Rate	Follow Inputs
Evacuation Rate	Temporal
Strobe Type	None
NAC 4 Output Settings	NAC
NAC 5 Output Settings	Continuous Supply



12.0 Appendix D - FX-2000 and FleX-Net Series ULI Compatible Devices

12.1 Horns and Bells

Table 24 FX-2000 and FLeX-Net Series ULI Compatible Horns and Bells

Manufacturer	Device Type	Horn Model	Max. Strobe/NAC
System Sensor -SpectrAlert	Horn	H12/24	n/a
	Horn	H12/24W	n/a
Wheelock	Horn	AH-24-R	n/a
	Horn	AH-24-WP-R	n/a
	Horn	MT-12/24-ULC	n/a
	Horn	AMT-12/24-R-ULC	n/a
	Bell	MB-G6-24-R	n/a
	Bell	MB-G10-24-R	n/a

12.2 Synchronized Strobes

Table 25 FX-2000 and FLeX-Net Series ULI Compatible Synchronized Strobes

Manufacturer	Brand	Strobe Model	Max. Strobe/NAC
Amseco/Potter	Mircom	FHS-240-110	15
Gentex Corp.	Secutron	MRA-HS3-24ww	20
SpectrAlert	System Sensor	P1224 MC	25
Wheelock	Wheelock	NS-24 MCW -FW	25

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